THE AUTOMOBILE

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OPENING OF THE PARIS AUTOMOBILE SALON.

From Our Own Correspondents.

PARIS, Dec. 8.—In its general lines the eighth automobile salon opened to-day by President Loubet does not differ materially from its immediate predecessors. The same elegant Grand Palais in the Champs Elysées; the same industrial section in the Serres on the banks of the Seine, close by the main building; the same opening ceremony by the President of the Republic, converted to automobilism since last year's show; the same elegant crowd, and, in order that it may not be thought that this sameness has produced flatness, the same, or even more enthusiasm than ever.

Outside, on the Avenue des Champs Elysées, and on the Avenue Nicolas II. Venetian masts and floral decorations, with a searchlight and numerous electric lamps at night, add additional beauty to one of the most artistic portions of the most beautiful city in the world. Inside the Grand Palais, while the general arrangement is the same, there is an additional finish and elegance. What last year was pretty has this year become luxurious; stands that were considered excellent last year have this year received an additional artistic touch, which has transformed them into elegant salons. In a few cases last year's designs have been retained with a few modifications, but in most instances a complete change has been made. Probably the prettiest and most costly stands are those in wrought-iron work, and foremost among them is the Mercedes stand, under the central dome. Delaunay-Belleville, Clément, Richard-Brasier,

GENERAL INTERIOR VIEW OF THE EIGHTH ANNUAL PARIS AUTOMOBILE SALON, OPENED DECEMBER 8, 1905, BY PRESIDENT LOUBET.

VISITORS' CARS LINED UP ALONG SIDEWALK IN FRONT OF THE GRAND PALAIS AT OPENING OF PARIS SHOW.

Charron, Girardot and Voight have all got stands worked out in wrought iron with charming effect. The Darracq stand strikes one by its originality of conception, being the model of a Hindu temple; massive stone (apparently) columns support tremendous cross sections covered with figures dear to the Eastern mind, while a modern touch is given by white electric lights outlining the whole.

Foreign firms, although not so well provided for under the regulations as is the local industry, have secured some excellent conditions, the Itala stand in particular, being large, well placed, and an excellent artistic conception. The designs consist of a triumphal arch in pure renaissance, the column being of colored glass illuminated from the interior. The Fiat stand is no less imposing, and Florentia, another Italian firm constructing under French license, is also well placed. No American firm has repeated the experiment of the Pope interests last year. On the exact spot is now the Dolores Company, a French firm owned and financed by Americans, which now exposes for the first time. The stand is a light wood structure painted in red and green, with a decorative panel over the center arch representing an automobile driven by a gentleman with a typically American face coming through a landscape on which figure in outline the inevitable house, cow and child. Under the trio are exposed the new 10-horsepower, four-cylinder town vehicle with driver's seat on left-hand side, a 40-50-horsepower chassis—the lowest and highest power machines—as well as the same models fitted with different bodies.

Just behind the Dolores stand one is attracted by the well-known word Cadillac. It comes as a surprise, for not very many days ago the promoters of the salon did not know that this firm would be among their exhibitors. The stand, which is rather badly placed, one half of it being in the main building and the other half under the cupola, so that from whatever side you approach it only one car can be seen at a time, was sublet to the Cadillac people at the last moment. Two types are exposed, a Model E light runabout with two individual seats and 9-horsepower engine, and a Model F touring car with side-entrance tonneau body, giving roomy accommodations for four people. This is the first appearance of the Cadillac people here, though it was known to the initiated that for some time they have been "spying out the land," and their car may now be expected on the French market as a serious competitor.

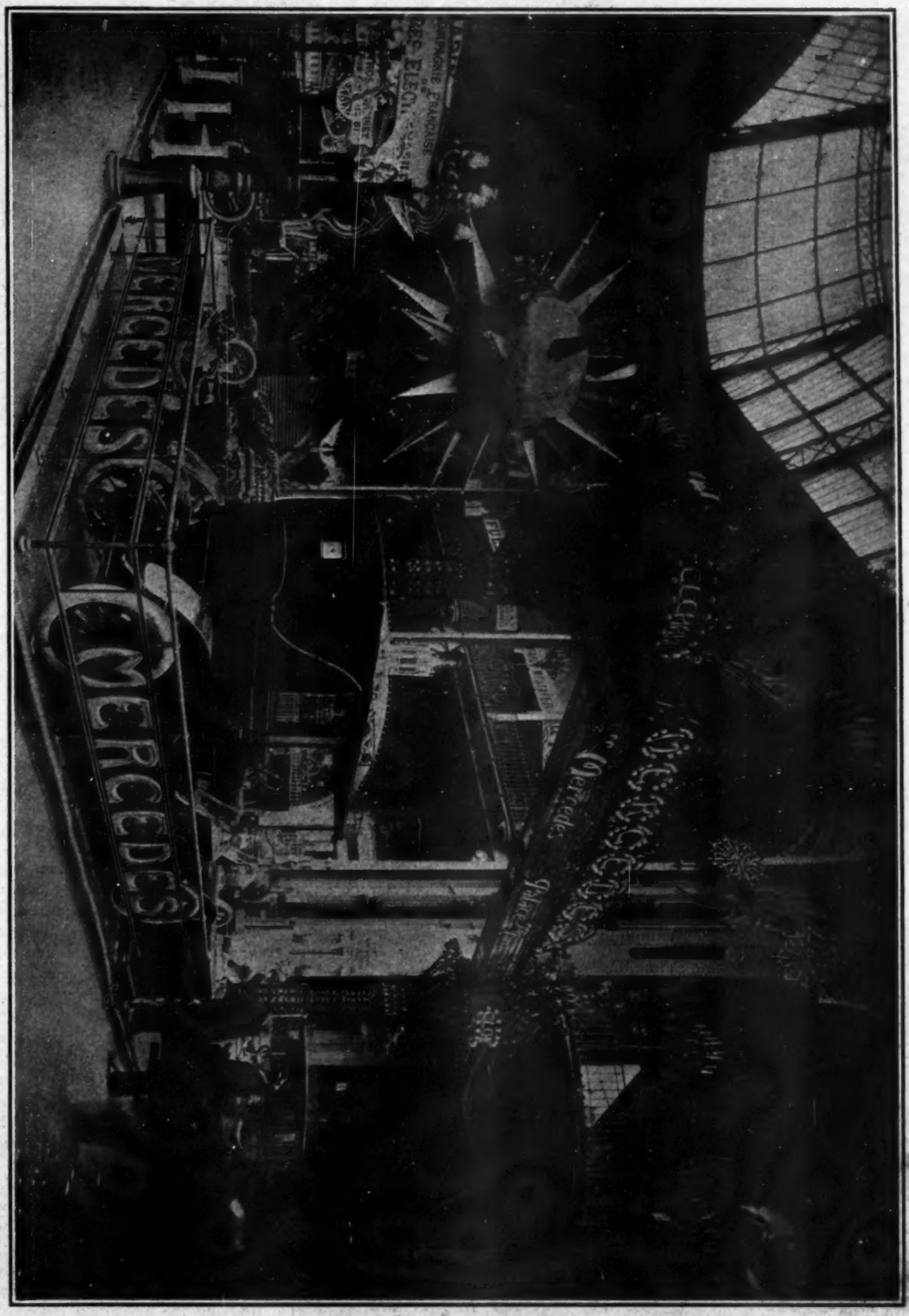
In the central avenue of the show is the Oldsmobile stand, in close proximity to the big displays of Darracq, Decauville and Itala. Two elegant-looking chassis, painted in dull silver and light blue, the one a two-cylinder, 16-20 horsepower, and the other a 20 horsepower, four cylinder, are shown, as well as a 7-horsepower runabout and a similar chassis fitted with body. In a cabinet on the stand a fine collection of trophies, some twenty in number, won by Oldsmobile in speed and touring contest, are exposed. Mr. Huss, who was instrumental in securing much of this silverware, is, if not exactly on exhibition, at least on hand for the numerous visitors who gather around the Oldsmobile exhibit. The stand decorations, modest in comparison with the lavish decorations in the immediate neighborhood, consist of light, double columns bearing the arms of the company, the name Oldsmobile in red luminous letters being supported by the columns, and crowning all is the outline of a runabout, which, together with the other portions of the stand, are picked out in white electric lights.

On the opposite side of the nave the Electric Vehicle Company has its show quarters, where, beneath the sign "Columbia" are to be found four American cars. They are a four-cylinder, 40-horsepower gasoline car with a landaulet body by a French maker, an electric landaulet, a Mark 61 victoria, and an electric surrey.

There is no waste space on the Columbia stand, for space is now a rare and costly commodity at the Paris Salon, and, as a consequence, there has been no room to indulge in decorative schemes.

Still another American stand is that of the American Locomotive Company, where, under a pretty triumphant arch in white and blue, tastefully decorated with luminous bands of flowers, is shown a single chassis.

NIGHT VIEW OF FACADE OF GRAND PALAIS IN PARIS SHOWING INCANDESCENT ILLUMINATION DURING THE AUTO SHOW

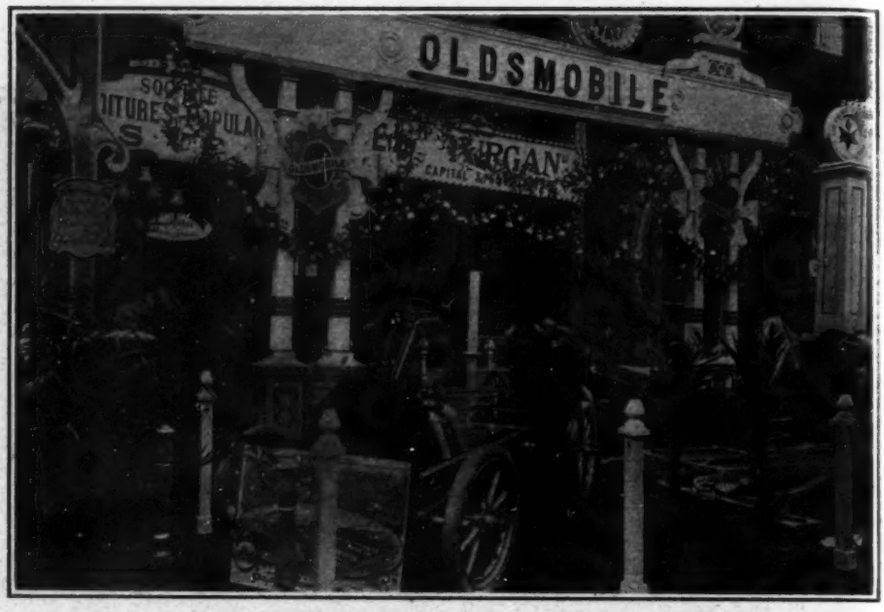


MERCEDES STAND UNDER CENTRAL DOME AT PARIS SHOW.—ONE OF THE MOST HANDSOME AND COSTLY EXAMPLES OF THE WROUGHT IRON STYLE OF DECORATION.

This is a 40-horsepower machine, built in America under Berliet license; the original factory drawings and patterns are used and followed in their entirety, and the model is in every respect similar to the one constructed in France. There are four sizes, 24, 40 and 60 horsepower, and the main features are pressed steel frame, four cylinders cast in pairs, drive by countershaft and side chains, two band brakes on the countershaft and internal expanding brakes on the driving wheels.

In the rush and bustle of the opening day it is impossible to get a very clear idea of what the Salon really contains. As at the theatre, the stage shifters slip out at one end while the curtain is being rung up, and from the moment the doors are flung open the crowd presses in so densely that it is impossible to obtain more than a very general knowledge of what is to be seen. One tendency that could not be overlooked is the great increase in the number of runabouts. Whereas last year it was almost exclusively a big car show, this year there are quite a number of small automobiles of from 7 to 10 horsepower, some of them constructed by well-known firms, others by small firms just entering into the business.

The Peugeot 7-8-horsepower runabout attracts more attention than most of the others, probably on account of the reputation of the firm as motorcycle constructors. For $720 to $760—the price has not yet been definitely fixed—a thoroughly reliable little runabout is supplied, constructed entirely on the lines of large touring cars. Forward under the bonnet is a single-cylinder motor; the car has pressed steel frame, drive through countershaft to side chains, three speeds and reverse, a comfortable body with two individual seats, the whole finished off in rich, dark colors. There is an Italian single-cylinder, air-cooled voiturette with single chain drive to countershaft and belt drive to rear wheels, with accommodation for two people, for as low a sum as $420. There is what is known as the "Passe-Partout," with a six or eight horsepower De Dion or Bucket motor, for $540; and from this sum up to $1,000 there are quite a number of single-cylinder runabouts constructed on correct lines, and having every guarantee of being reliable little cars.



OLDSMOBILE STAND AT PARIS SHOW.—NEW FOUR-CYLINDER CAR IN FOREGROUND.

Famous racing machines are rather numerous at the show. On the Richard-Brasier stand is the famous No. 1 with which Théry captured the Gordon Bennett Cup in Auvergne. The trophy occupies the driver's seat, being laid on a hastily constructed table. At the Darracq stand is the famous car with which Hémery won victory in America. It still carries the number 18 on the radiator and appears none the worse for catching fire. Except for its tires, one would not believe that it had run more than two or three miles. At the Itala stand is the big white car, newly painted, nickeled and polished, but still bearing its original tires, with which Raggio won the Florio Cup last September. The much-valued trophy stands on a pedestal, and the Italy Cup and the Count de Salemi Cup keep it company. Not being able to show the original, the De Diétrich people expose a model of the Pyrenees Cup, won by Sorel on one of their touring cars.

The number of exhibits totals 1,052, in all sections of the show. Of these 985 are French, 21 English, 18 Italian, 10 German, 10 Belgian and 8 American. There are, in addition, 30 cars entered for the town vehicles competition and exposed in one section of the Serres. Twenty-eight of the competitors are French and two American. In the art section there are 83 paintings relating to automobilism, 20 sculptures and 309 etchings or drawings. New inventions total 57. The figures represent the number of stands, and not the number of firms. In some cases, as, for instance, an American stand in the industrial section, seven or eight different firms are represented by one agent.

Foreign visitors to the show are as numerous as in previous years. Americans appear to predominate over English, who have, indeed, not much reason to cross the Channel, owing to the priority of their own exhibition. Many of the visitors from the States will not arrive until the beginning of next week. Amongst others, Mr. J. Tracy was noticed this morning attentively studying the various exhibits immediately after the opening of the show. Italians have come in fairly large numbers, and Germans appear to be studying the exhibition closely.

The industrial section of the automobile show is exposed in the Serres, as last year, but, owing to its incomplete state, but a superficial idea of its contents could be obtained. Even at a late hour this afternoon

STAND OF PANHARD & LEVASSOR, SHOWING CHASSIS AND CAR WITH ENCLOSED BODY.

VIEW OF A SECTION OF THE PARIS AUTOMOBILE SALON, SHOWING ELABORATELY DECORATED COTTEREAU STAND IN THE FOREGROUND.

the public was not admitted to more than a small portion of this section. It is in this part of the show that the greatest increase is noticeable. A large amount of space has been gained, but every inch of it will be occupied. Many of the stands are small factories in their completeness. A splendid selection of machine tools is shown by Fenwick Bros., who represent principally Brown & Sharp Manufacturing Co., Providence, R. I., and the Pratt & Whitney Co., Hartford, Conn. Both of these concerns are showing a large number of machines and tools. There is also on exhibition a machine from each of the following American firms: W. F. and John Barnes Co., Rockford, Ill.; Fosdick Machine Tool Co., Cincinnati; Builders' Iron Foundry, Providence, R. I.; Gleason Works, Rochester, N. Y.; Heald Machine Co., Worcester, Mass.; Whitcomb Mfg. Co., Yale & Towne Mfg. Co., Bullard Machine Tool Co., Bridgeport; Excelsior Needle Co.; Herron & Burry Mfg. Co., Cleveland Twist Drill Co., Cleveland, O.; American Emery Wheel Works, Providence, R. I.; Diamond Machine Co., Providence, R. I. Among other machines which will be in operation in a few days are a full line of new model lathes, spindle drills, tool makers' tables, 14-inch lathes, vertical milling machines, cylinder grinding machines, new model gear planer and an automatic grinding machine for grinding milling machine cutters.

Apart from the show proper are quite a number of auxiliary events, many of them of the greatest importance. During the course of the Salon there will be a competition for comfort and convenient arrangement in automobile boats; an exhibition of new inventions dealing with automobiles and cycles; a competition for photographs dealing with automobilism; an art exhibition comprising paintings, sculpture and engravings, and a competition for the most artistic stands. There will also be held, beginning next Monday, the Motorcycle Club's congress; a touring congress; a competition for the automatic starting of motors; an international congress to fix dates of important automobile events for 1906, and a meeting of foreign delegates with the committee of the Automobile Club of France to decide on a program for next year.

Salon Seen Through Technical Eyes.

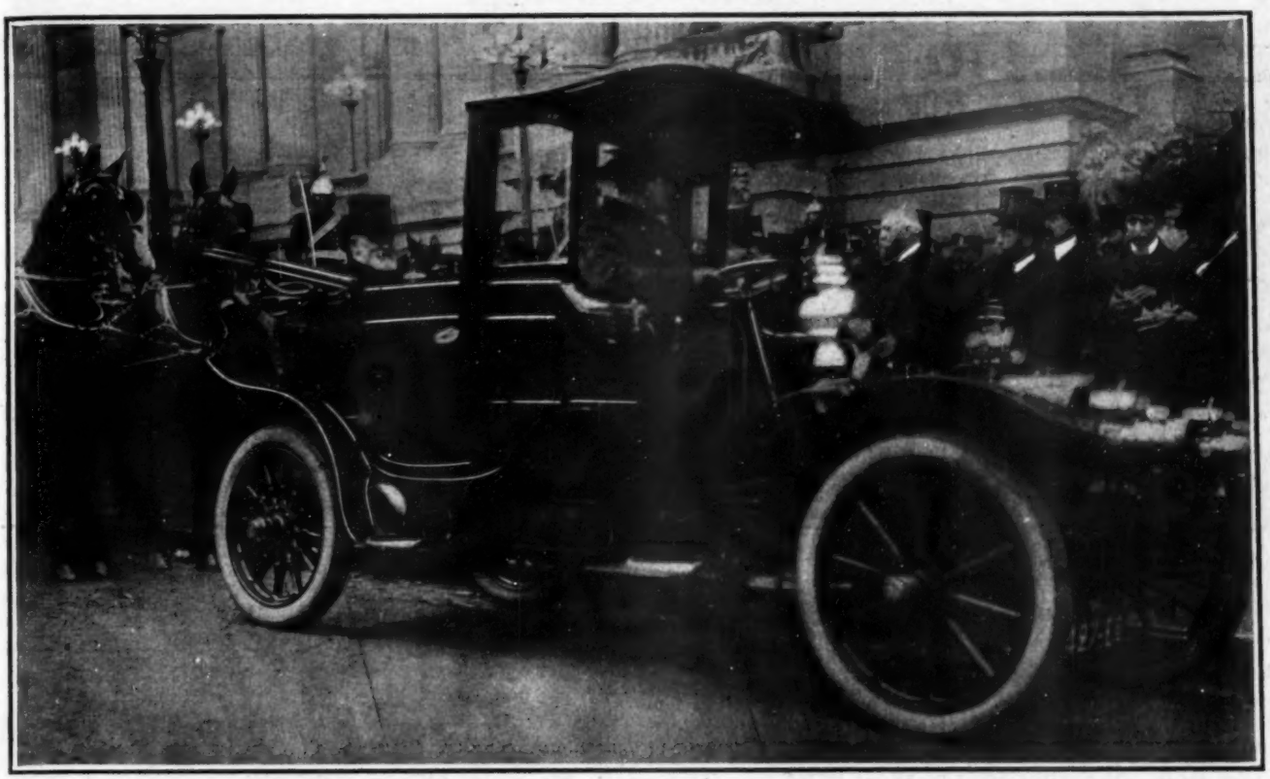
PARIS, Dec. 8.—After a late return from the Grand Palais, full of the daze of the thousands of electric lights and of the hum of the densest opening day crowd that can be imagined, the unfortunate technical man, fresh from the battle in which he had to fight his way from chassis to chassis, has to put down whatever impressions he brings back and what he judges the trend of things to be. He feels very much like asking for a night's rest and a week's leave to unravel the general confusion of his ideas, but mail trains will not wait and transatlantic liners also start on schedule time. So to work.

A few general features are, however, so very prominently in favor with the majority of the manufacturers of the machines shown that they don't need much effort to express themselves in that weary mind.

First of all should be noted that unmistakable mark of a healthy and scientific development of the automobile designer's art: the tendency of all makers, whatever their starting point and whatever their preconceived and hard defended ideas may have been, to come through various channels to a single design, which in a few years will certainly represent the best practical and most salable automobile. Of course this must not be taken to mean that all automobiles made five years from now will be exact reproductions one of the other, whoever their maker may be, but it should be understood that as we advance we come nearer to the exact solution of all the controversies that have divided the automobile world for years, and that, the correct principle being found, every one will apply that one principle, although there is an infinite number of ways of applying it, the exact value of which will be determined by a number of outside circumstances which will be different in every case.

This evident tendency toward unification in the design of the main elements of the modern automobile has evidently been noticeable for some time, but never as much as this year, and for that reason it should not be considered as a desire of the generality of designers to imitate with more or less seriality the work of some especially successful engineer. If such was the case, it would merely be a craze, such as that through which we went some three years ago, at which time so many machines were more or less reproductions of the then wonderful design of the Mercedes simplex.

PEUGEOT GASOLINE OMNIBUS ENGAGED IN CARRYING PASSENGERS TO THE PARIS SALON.



PRESIDENT LOUBET, OF FRANCE, ARRIVING BY AUTOMOBILE LANDAULET TO OFFICIALLY OPEN THE PARIS AUTOMOBILE SHOW.

Of the different points in construction that suggested these thoughts to the writer, a number have now come to what can be considered an almost universal use with French and other good European makers, while some others are simply showing year after year a steady gain in popularity, which undoubtedly means that when the absolutely correct way of applying them will be found they will in turn become universal. All these points will be considered in detail in a series of studies that will follow and that will be devoted to each of them in particular, but for the time being a general and brief idea of the principal lines of interest in the special direction considered should be given.

Amongst the points in car construction that can be considered as practically universal in the present show, the two prominent ones are the constant mixture carbureter and the mechanically operated inlet valve. The former is to be found on all stock cars, sometimes in a most elaborate and complicated form, and some other times in the simpler fitting of a very light sort of automatic extra air inlet valve conveniently situated between the carbureter jet and the motor. In one or two instances, where extreme simplicity is the aim of the designer, all moving parts have been suppressed, automaticity being simply obtained by special shapes and dispositions of the gas ducts in carbureter and in special forms of jets.

The mechanical valve is to be found almost everywhere. The only really noteworthy instances of automatic valve design are the De Dion, who always stood by the side of that system, and the new Renault four-cylinder 10-horsepower town car. Yet it should be noted that with the Renault machine it is simply a matter of reduced cost and slightly increased simplicity, while in the De Dion case it is a sign of the times to see that the firm that almost swore never to use the mechanical valve timidly shows a large railroad car gasoline engine in a back corner of the annex which follows every line of the De Dion design in absolutely every respect except for the four little push-rods and valves that look a great deal like a blushing acknowledgment of mechanical valve qualities.

A point to be noted in mechanical valve construction, however, is the almost general discarding of the overhead valves with their long push-rods and horizontal tappets. This being a most interesting object lesson in the line of wear in articulations, after the boom which this type of inlet valve appeared to enjoy at last year's show. Theoretically the overhead valve direct in the center of the head should make a superior engine, but in practice, the French designers assert, the wear of the operating mechanism causes an objectionable clicking and alterations in the timing of the valve. For these reasons chiefly, there is a reversion to the direct acting mechanism.

A growing tendency exemplified in De Dietrich and Richard-Brazier practice, following the step taken long ago by Renault, is to place both valves on the same side of the engine over a single camshaft. This practice leads to some display of skill in the design of a correctly made system of pipes, while it has the advantage of reducing wall surface inside the cylinder in proportion to cylinder head capacity. The De Dion engine with mechanical valves, already mentioned, displays a new and smart idea in that direction and will be described in detail later.

A new line opened to the inventive genius of automobile makers, by the recent announcement of a "starting from the seat" competition, seems to have very well caught on, as several firms, and not of the least, present apparatus for this purpose which appear thoroughly practical and worthy of a more lengthy study than the frame of this article will permit.

Leaving engine details, we find in the construction of the car proper great advances in spring and shock absorber designs. All sorts of springs likely to increase the comfort of the occupants of the car are to be found from the full C springs on the C. G. V. to the simpler but also greatly improved forms. Shock absorbers are, to say the least, almost as numerous as carbureters; that means not a few, some of them embodying really clever and practical features, while some others unexpectedly seem to be fit to do just the reverse of what they are meant for.

The live axle system is not making much fuss, but it steadily ousts the side chain, which, however, still stands supreme on the really high-powered machines. No startling changes are made in its design, but De Dion, with the curved outer solid carrying axle, is finding wise imitators, while it is now standard practice to carry the wheels on the axle tubes, leaving the driving torsional effort alone to be taken care

of by the internal shafts, such as has existed for some two years in the Decauville machines.

The double separate sliding sets change speed gears are increasing in favor, their advantage being to permit of lighter and stronger change gear systems. As a rule the tendency is to reduce the proportions of the gear box, genuine marvels being produced in that direction. The use of positive locks to hold all the gears in the proper position in the gear box, whatever set may be in use, is becoming general. In not a few instances a special lock has to be put out of action either by hand or foot in order to put the reverse in use, the idea being to prevent the accidental throwing in of the reverse when changing gears.

Pawl-ratchet sprags are also gaining in favor, crutches being absolutely absent except on some commercial vehicles. In some cases a special system automatically puts the sprags out of action when the reverse is thrown in mesh.

Little efforts are shown in the direction of kerosene and alcohol motors, but on the other hand the commercial vehicle business seems to have received a huge impetus resulting from the competition organized by the club during last summer and also as a result of the various large orders given by a number of French and foreign public transportation companies. Special care will be taken of this section of the show in the studies to follow, so it is not necessary to deal with it further at present.

In the motor boat section few novelties are shown, the racing craze seeming to have seen its best days for some time to come, while the cruisers show little if any difference from those exhibited last year. The machinery section shows an increased number of special automobile part manufacturing machines, and a few interesting novelties, especially one that will be fully considered in the line of metal welding and general sheet metal work.

To sum up, the eighth salon, which is one of the finest sights the show buildings in Paris ever sheltered, is fully as much the meeting place of the world's best and most modern engineering developments as it was to-day the meeting place of France's best society and of many of the world's most prominent cosmopolitans.

GAS ENGINES IN TRAINING SCHOOL.

MUSKEGON, Mich., Dec. 16.—Gasoline engines for bicycles and boats are at present occupying the attention of the pupils at the Hackley Manual Training School and preparations are being made for the installation of machinery made by the pupils next spring. Six sets of castings for 2 1-2-horsepower gas engines have been purchased by the Board of Education. These castings are intended for either marine or stationary engines. If, at the end of the year, the boys wish to own the engines they may do so by paying for the castings.

American Cars in Favor in China.

IF there is one country where the automobilist would hardly expect to find the motor car entering into an extended use it is China. That the Celestial Empire, immense in its proportions and very unfriendly toward the adoption or use of any of the mechanisms of higher civilization, should not only have accepted the motor car as far back as 1902 but is even now encouraging its use, is a very remarkable fact. It is impossible to learn how many automobiles are being used in China at the present time, but the number is placed at considerably more than one hundred. It is especially pleasing to note that the American-made car is giving the best service, although outnumbered by the cars of European manufacture.

The use of automobiles in China is, as would naturally be expected, confined largely to the many foreigners engaged in business there and living in the big cities along the coast. In the past year, however, a number of wealthy Chinese have purchased cars and are now enthusiastic automobilists. In consequence, the wealthier class of natives is beginning to look upon this mode of travel with special favor, and therein lies the promise for an extensive field for the automobile industry in China. Shanghai is the automobile centre of China and has now three garages with repair departments. It is also the home of the Automobile Club of China, which was organized last May and now has twenty-two members enrolled.

RUNABOUTS MOST IN DEMAND.

The first automobiles imported into China were six steam cars of American manufacture in 1900, but none of these was sold. Three Oldsmobile runabouts were imported in 1902 and found immediate purchasers, and the next year two De Dion runabouts were brought in. The number of cars imported in 1904 and 1905 showed a remarkable increase. The present demand is for cars of the runabout type, because the narrowness of the streets in the cities of China make the operation of large cars very difficult, if not dangerous. All of the American cars imported into China have been either runabouts or small touring cars, and this accounts for the preference shown them over the large cars of European manufacture.

The roads outside of the cities in China are very favorable to the use of the automobile, and the only drawback for town use is the narrowness of the streets. All of the cities and towns are connected by magnificent macadam highways, which are kept in excellent condition, and, as the railroad facilities are very poor, most of the travel is done over the roads. So suitable are the roads of China to the use of the automobile, and so necessary is the adoption of improved transportation facilities, that the extended use of the motor car in that country is certain in the near future.

In his report to the Department of Commerce of the United States, Special Agent Burrill, who is now studying the commercial conditions in China, says, in part: "China presents a steadily increasing market for automobiles, and the sale of machines of American manufacture has kept pace with the demand. While the purchase of cars to this time has been confined almost exclusively to foreign residents, the wealthier class of Chinese now regard this mode of travel with special favor. Chinese drivers of automobiles are the rule rather than the exception here, and this familiarity of the natives with the running of the cars, in addition to their speed, comfort and utility, is assisting in influencing the Chinese in their favor. The roads in and around Shanghai, and, in fact, throughout most of China, are macadamized and kept in excellent condition by the municipal authorities, money is abundant, and conditions are generally favorable to the extension of the automobile business in China."

SUGGESTIONS FOR EXPORTERS.

He makes several suggestions, which we publish for the benefit of the trade:

"Manufacturers should give prompt attention to filling and shipping orders. Unnecessary delays frequently occur which furnish additional cause for criticism of American carelessness and indifference to the demands of the export trade.

"Any misrepresentation as to the time of shipment should be scrupulously avoided. Manufacturers should forward the machine on the date promised, as any excuse, although it may be fully warranted by conditions, will be regarded here with suspicion. This is the unfortunate, though unavoidable, result of previous experiences when the shipment of other commodities has been delayed beyond all reason.

"Close attention should be paid to the details of the shipment. No car should leave the United States unless its equipment is complete. This caution becomes all the more important, because several instances are cited where a machine has arrived in Shanghai and when unpacked discovery was made that the starting handle, or some other essential part, had been forgotten. This kind of carelessness occasions a long, unnecessary delay and natural irritation on the part of the purchaser.

"Freight rates on automobiles are high, both by San Francisco and the Suez Canal, and while it may be difficult to procure any reduction because of the comparatively limited number exported to the Orient, it is suggested that some action be taken, in the interest of the trade here, looking to cheaper transportation."

The freight and insurance rates on a car laid down in Shanghai amount to about $50 in gold. A customs duty of five per cent. on the invoice valuation of the car, including the freight and insurance charges, is collected.

League Danger Signs.

More than 300 accidents to automobile tourists have been reported in the United States and Canada during 1905, it is said, many of them resulting fatally. It cannot be said that these accidents were wholly due to rapid speed or reckless driving, for some of the most serious ones happened to automobilists who are known to be prudent and careful in the management of their vehicles. Most of them could have been avoided by a better knowledge of the danger points, or by some warning by which the tourist could have been advised of the proximate peril. The truth is that in many parts of the country, and especially in those sections which are most picturesque and attractive to the tourist, the highways are too narrow and winding and are often skirted by deep, unguarded ditches and dangerous gullies and crossed by railroad tracks at points where the tourist would have little reason to anticipate them.

To lessen these perils as much as possible the American Motor League has called upon its consuls, members and proprietors of official stations, in all the important states where touring is most popular, to take up the work of erecting danger signs and guide boards by which the tourist may be forewarned and his course directed to the avoidance of these pitfalls. Many of these danger signs have already been put up. The Pittsburg Board of Consuls of the A. M. L. has been particularly active in western Pennsylvania. The league sends out stencils from which these signs can be easily made by a man of ordinary skill, and in some cases the completed signs are sent out ready to be put up.

Blanks are being sent to automobilists in several states with letters requesting information as to points where these signs should be erected, and a contract has been made with a firm in central New York for a large number of signs, which will be put in place during the next few months. It is believed that before the end of 1906 more than 3,000 of these signs will be placed in different parts of the United States. Full information will be sent to any person addressing American Motor League, Vanderbilt Building, New York.

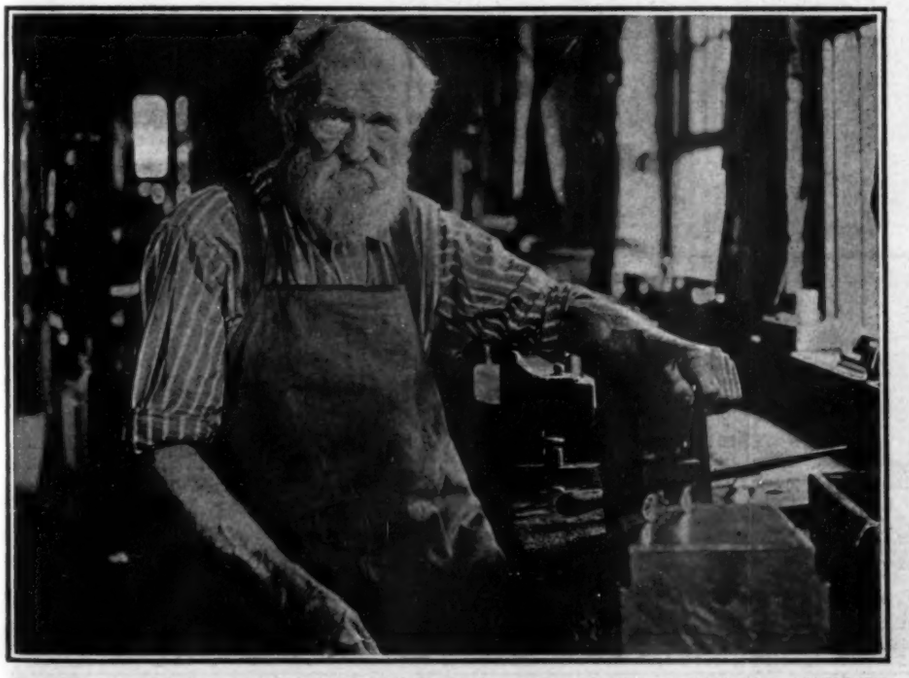
AN ALLEGHENY COUNTY ROAD SCENE SHOWING DANGER SIGN AT TOP OF HILL.

"DADDY" BARNES, VETERAN.

At four-score years "Daddy" Barnes, employed at the Pope Motor Car Company's factory in Indianapolis, asserts that he is the oldest mechanic employed in the automobile business and declares that he is not nearly ready to quit active work. Although his life has been one of hard toil, time has dealt kindly with him and his form is still robust, his hand steady and his blue eyes keen.

Among all of the 600 employees of the company, because of his bright, philosophic mind and ever-ready kind words to those about him, he is affectionately known as "Daddy," and whatever else his name may be, it has been lost in the more familiar cognomen.

The tools he uses daily at his bench were made by himself, some of them as much as half a century ago. The brace was made fifty-five years ago, the breast drill forty-nine years and the hack saw an even half century. He has been associated with the manufacture of bicycles and automobiles since their inception and sixteen years ago made the patterns for the first bicycle built by the Indiana Bicycle Company. He has been a close observer of the development of the automobile since the first Waverley electric was built.



"DADDY" BARNES, SAID TO BE OLDEST MACHINIST IN THE AUTOMOBILE BUSINESS, EMPLOYED IN WAVERLEY PLANT OF POPE MOTOR CAR CO.

Two motorists were driving down College street when, in trying to adjust some misunderstanding, the lie was passed and the fight was on. The steering apparatus of the machine, which was a Cadillac, was turned loose and down the street they went, locked in each other's embrace. One would hear an occasional "cuss" word and see a swing of the good right arm of each combatant getting in a lick on the other's anatomy. What would have been the result is hard to imagine, but fortunately as the scrappy cargo passed the engine house one of the firemen ran out and stopped the automobile, when the combatants were separated. No arrests were made, and the damage done was a discoloration of the optic of one of the combatants and a few sore ribs for the other.—Nashville *Banner*.

Crossing the Great American Desert.

NEEDLES, Calif., Dec. 11.—The *Mountaineer* has left the shores of the Pacific far behind and is now making for New York as fast as gasoline can carry her; delayed here and there by a river, a desert or a snow-capped mountain, but always regaining lost time on every fair stretch of road.

From earliest boyhood, we have read and heard tales of the Great American Desert, of Death Valley, of alkali waters and sandy wastes that were strewn with the bones of man and animal. I have been told that it was utterly impossible to take an automobile across these sandy wastes and have noted that in all transcontinental touring to date the machines have veered far to the north and crossed the heights of the Sierra Nevadas rather than brave the level sandy districts of Western California, Arizona and New Mexico. Therefore, it is not surprising that we left Los Angeles with some misgivings as to the success of our undertaking, and although I made light of all stories concerning the impossibility of desert automobiling, I must confess that I had misgivings such as only an automobile driver who has struck sand once or twice before can have. While it may be a little early to boast, we are glad that we have already crossed the worst stretches of the desert, at the rate of eighty miles a day.

Facing a Sand Storm.

When we arrived at Daggett the wind had begun to rise and by morning it was blowing a gale. Facing such a wind is bad enough on the ordinary dusty road, but on the desert where there is nothing but light shifting sand it is worse. The gale, carrying clouds of sand, bore down upon us time and again until at midday it was almost as dark as night and the fine sand blew into our eyes, creeping under and around the edges of our goggles until we couldn't see. Running part of the distance on low speed, but fully three-quarters of the way on the high, our chain creaking and the engine straining to its utmost capacity as the wheels were forced around in deep soft sand, we steadily forged ahead, knowing that every mile traversed brought us nearer to the end of the sand.

Stopped by the Wind.

At one time the wind blew so hard that it brought the car to a standstill and the sand stung our faces like needles. Fassett rode by my side with both arms across his face, while Vaughan, a Los Angeles autoist, who has voluntered his services as a guide through this state and Arizona, rode in the tonneau, his face protected by the canvas covering. I steered the car with my left hand and tried to protect my face with my right arm, but despite all efforts the sand and small pebbles pelted me almost unbearably. Mile after mile we covered in this way, nobody saying a word, while the sand storm raged with increased violence. The car fairly ate up gasoline, but luckily gasoline can be secured at every little railroad station along the lines of the Santa Fé where there is a section house and a small store.

While traveling the Cajon pass, some seventy miles out of Los Angeles, the *Mountaineer* turned over for the first time. It was at a sandy curve and the wheels, caught in the deep sand, refused to bring the car around. It went over slowly and all managed to jump or get thrown out and crawled out from under before the car fell over. It tipped to the right, and not content with turning over once, rolled over again and again until it finally landed on its side at the bottom of the embankment.

Expecting to find everything broken, the crew was agreeably surprised to find the damage very slight. Broken mud guards, a broken spring leaf, badly bent searchlight and side lamps and a slightly distorted steering wheel were the sum of the damages done, and in fifteen minutes the machine was again eating up the road toward Daggett, steering a little wild, but keeping the road and making good time through sand or lava.

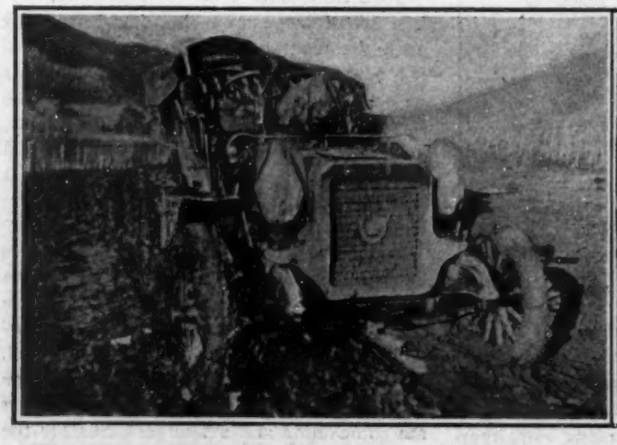
Crossing the Colorado.

We expected to find a regular ferry across the Colorado river at Needles, but we didn't. It was hours after we had reached the banks of the river before we were able to make the Indians who owned boats in that vicinity understand that we wanted a boat large enough to carry the machine across. Finally, about 4 o'clock in the afternoon, a very large rowboat, used for hauling wood, was secured, and after some bargaining we induced a man to row the automobile across for $6, but he would not be held responsible if the boat refused to carry the automobile or should upset in the rapids. It was our only chance and we accepted the conditions, not, however, without some serious misgivings. The boat was backed up to the bank and planks were laid down a 50 per cent. grade. The automobile was then carefullly lowered by its cable to the boat and as carefully pushed toward the middle of the frail craft. The water was crossed successfully and by laying skids up the opposite bank and planting a dead-man, we hauled the car up by windlass until it rested in the soft white sands on the further shore. Then we camped for the night.

First Automobile Ever Seen.

The Reo is the first automobile that has ever run any further east than Daggett on this route, and at every town at which we stopped the inhabitants, usually consisting of the telegraph operator and the section boss and their immediate families, crowded around and plied us with questions. At Daggett they told us of this and that machine that had tried to cross the desert, but had always been brought back, usually on a freight car. The section crews, working on the tracks of the Santa Fé, invariably stopped work when the *Mountaineer* hove in sight and refused to touch pick or shovel until we were far in the opposite direction. Several of the section bosses took off their hats as we sped by. One man said he was proud to doff his hat to an automobile that could travel through that sand, as he never believed it possible. Everywhere we were asked our names, the name and power of our car and requested to give our cards, as they wanted to always remember the first automobile to cross the desert.

Percy F. Megargel.



THE "MOUNTAINEER" ENCOUNTERS AN ALKALI MUD HOLE IN THE CALIFORNIA DESERT.

MEETING OF MEGARGEL AND CHADEAYNE, MOTORCYCLE TRANSCONTINENTALIST, IN LOS ANGELES.

Motorcycle Transcontinental Record Trip.

BUFFALO, Dec. 17.—William C. Chadeayne, the young man who established a new motorcycle record between New York and San Francisco, returned to his home here a few days ago, having come from the west by railroad. Chadeayne left New York City on September 13, and arrived in San Francisco on October 30, having made the trip in 47 1-2 days, just one day less than the time made by George A. Weyman in his trip between the same points, but going in the opposite direction.

Chadeayne is secretary and treasurer of the Thomas Auto Bi Company of this city, and rode one of that company's 3-horsepower motorcycles on his trip. He said he did not make the trip for the purpose of advertising his machine or expecting to derive any profit, but simply to demonstrate the practicability of motorcycles in general. Upon his arrival home he expressed the opinion that if he had made the trip at a better season of the year he could have done it in much less time.

Mr. Chadeayne had many interesting experiences on his trip and not the least of his troubles was obtaining oil and fuel for his motor.

"When I left New York," he said, "I started to keep an account of the amount of oil and fuel I used and the cost, but it soon became such a burden that I had to quit. Why, I paid from fifteen cents to a dollar a gallon for gasoline, depending on where I was when I needed it. I guess I used in the neighborhood of a barrel of gasoline and from fifteen to twenty quarts of oil. I used everything in lubricating oil from mowing-machine oil to the best stuff on the market. One day I went forty miles with my tank full of mowing-machine oil. I rode for six or seven hundred miles over railroad ties. This wasn't so bad as a general thing, but it certainly shook me up and was about all the machine would stand."

"From Ogden, Utah, to San Francisco proved the most trying part of my trip," said Chadeayne. "I had only six days in which to beat the record and I used every bit of energy in me to get through ahead of time, riding when I could and walking when I could not ride, sleeping only when sheer exhaustion compelled it.

"The day after leaving Ogden I had a narrow escape from being killed. I was bumping along the railroad tracks when suddenly I heard the noise of a train and turned to see it almost upon me. I had just time to turn my machine sharply to the right, and I was thrown with it into a ditch, the train passing by with a roar. I expected to find my machine a wreck, but a bent crank seemed to be the extent of the damage.

"I had a fall of about thirty feet over a steep embankment the day before I got to Ogden. I was going down a pretty steep grade in what they call Weaver canyon. There was a sharp turn at the bottom of the hill. I should have made it all right, but I struck a snow drift and was sent flying over the bank. I don't know how long I was out, but when I woke up two men were carrying me to a ranch house. There I succeeded in fixing my machine up so that I could continue that night, reaching Ogden at 5 o'clock on the following morning.

W. C. CHADEAYNE, HOLDER TRANSCONTINENTAL MOTORCYCLE RECORD, AND HIS THOMAS "AUTO-BI."—Photographed Ten Minutes After Arrival in San Francisco on October 30, 1905.

"At Potter, Wyoming, I saw a gang of men about to lynch a man who had started a prairie fire—a serious offense out West. The sheriff and his men arrived just in time to save the man. When I finally arrived in San Francisco it took me about three days to stop riding. I stayed in my room, slept almost all the time, generally dreaming about things I had done on the trip and imagining I was still going. The boys in 'Frisco certainly gave me a great time. My money wasn't good there and there wasn't anything too good for me."

When asked if he would advise others to make the trip, Mr. Chadeayne said: "If two fellows, with plenty of money and time, would start earlier in the season, without going for a record, it would make an interesting trip. Of course, there are things which would make it hard at any time, because a rider would have to encounter the prairies and bad roads no matter what the climatic conditions might be. If I were to do it over again I could do it better because my experience has taught me the roads and I could cut out many of the bad places. But going for a record takes off the fascination of the trip, anyway."

Chadeayne's machine was in much better condition after completing the trip than would have been expected, considering the many spills and accidents he experienced. The machine is of the ordinary late model of the Thomas Company, with the exception that the gasoline and oil tanks are much larger, in order that it might go farther without replenishing the fuel. Chadeayne used a racing gear throughout the trip. The accompanying picture of him was taken a few minutes after his arrival in San Francisco.

AUTO CORN POPPERS NEXT.

ROCHELLE, ILL., Dec. 16.—An automobile corn-popping outfit started away from Kings, Ogle county, recently. Kings is a great center for the production of popcorn, and a man with an inventive turn of mind equipped an auto with a full popping outfit and started south with it. When last heard from he was still making for Dixie.

It is not improbable that manufacturers will produce a combined auto and corn-popping machine in the near future. In fact, the two are very close together in Peoria, where the Bartholomew Company, which builds the Glide, is also manufacturer of many kinds of peanut roasters and corn poppers. Some of them are as big as a traction engine. There is an immense demand for them, and it is only a question of time when the two kinds of machines will be combined, although no announcement of this nature has been made by the Peoria factory.

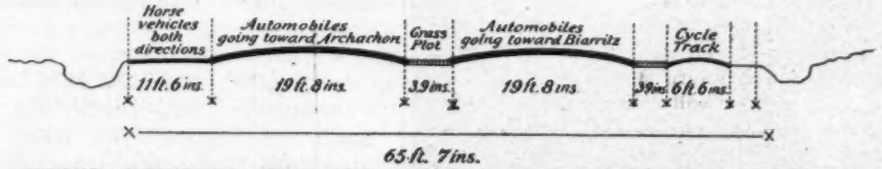
Since the enactment of the present Indiana automobile law, Indianapolis owners must now have two licenses, one a state registration at $1, which does not have to be renewed, and the other an annual city license, costing $3. However, Indianapolis motorists are expecting much from Mayor-Elect Bookwalter, who will take office January 1. Mr. Bookwalter is prominently identified with the automobile industry of the city and it is believed that he will recommend that the city license be removed.

Proposed Auto Speedway on French Coast.

PARIS, Dec. 6.—France, like England, is desirous of possessing an important automobile speedway, where, unrestricted by police regulations, free from all danger of straying animals, sleepy drivers of teams, or nervous old women, the automobilist can travel at any speed he likes in perfect safety.

Unlike the British project, which seeks to link London with a distant busy town, the proposed French speedway is far away in the southwest corner of the land, over a virgin soil, where game abounds; through forest, moor and tableland, with vistas of the rolling Atlantic away to the west, and where fresh salt breezes will dissipate all exhaust gases and invigorate the driver of a car.

Between Biarritz on the Spanish frontier and Arcachon on the west coast of France, is a distance of about thirty-five miles of perfect beach. Three or four miles from the beach, and almost parallel with the Atlantic coast, are a series of the largest lakes in France—Cazaux, Biscasosse, Aureilhan, Léon, Soustons, Hossegor—six magnificent lakes, well stocked with fish, abounding in game, and surrounded by luxurious vegetation.



PROFILE OF PROPOSED AUTOMOBILE SPEEDWAY ON THE ATLANTIC COAST OF FRANCE.

By uniting the two towns by means of a special road reserved to automobiles and cycles, the whole of this virgin soil, probably the richest in France, if not in all Europe, will be opened up to a wealthy section of society anxious to avail itself of all the advantages of nature. The realization of the project is rendered more easy by the almost total absence of transverse roads, and its proximity to the ocean puts it out of the way of forest traffic, which is almost entirely to the east of the proposed boulevard. There will be no grade crossings, for the two or three roads will cross the speedway either by overhead bridges or by tunnels under the road.

It is proposed to construct three main tracks: A cycle track, 78 inches wide, reserved for motorcycle and bicycle traveling in either direction; a drive, 19 feet 8 inches wide, reserved for automobiles going towards Biarritz, and a drive of equal width for automobiles going in the direction of Arcachon.

A fourth course, 11 1-2 feet wide, will also be made for horse-drawn vehicles going in both directions. Between the automobile and the cycle tracks will be left a strip of land 39 inches wide to diminish the danger of accidents from the unlimited speeds which will be permitted.

About every six miles will be established stations, all united by telephone, at each of which will be placed a guardian, and where tools as well as a car for touring purposes will be kept in case of emergency. In addition, telephone boxes will be placed at frequent intervals along the speedway, communicating with the repair stations.

A toll will be exacted from all persons using the speedway, the fund so obtained to be used for paying off the capital advanced by the society promoting the scheme, which body will at the end of fifty years hand over to the state the whole undertaking on conditions to be hereafter arranged. The estimated total cost of the project is $1,800,000, all the land over which the speedway runs being the private property of the French government.

In order to popularize the proposed Biarritz-Arcachon automobile road, a number of excursions have been made through the country, to which have been invited prominent automobilists, state officials and members of the automobile and general press. One of these excursions, which had to be conducted entirely on horseback, owing to the lack of roads, was terminated last week, much to the pleasure of those taking part in it.

The speedway will be brought prominently before the public during the Paris show, and as the only difficulty now is that of finance, the promoters hope within a short time to receive sufficient support to commence actual operations.

French Road Racing in 1906.

PARIS, Dec. 7.—At last all uncertainty as to the attitude France would adopt with regard to road racing next year is at an end. A few days ago the committee of the Automobile Club of France decided to ask the opinion of the *Chambre Syndicale de l'Automobile* (constructors' section) on this question, and a meeting of that body was held immediately.

About fifteen of the most important French constructors were present, including Messrs Brasièr, Renault, De Turckheim (De Diétrich), Clément and the Marquis de Dion, and on the question being put as to the advisability of a speed test next year, eight voted in favor and not one vote was given in protest. The president of the body, the Marquis de Dion, who never races and who is known to have no enthusiasm for speed tests, refrained from voting, and curiously enough it was he who was charged to present the constructors' resolution to the Automobile Club of France.

Last night the committee of the A. C. F. met, and, after a long discussion, decided to promote a long-distance road race, the organization of which should be left to the sporting commission of the club. Nothing further is yet officially decided, but it can safely be predicted that the Grand Prix scheme of last December will again be brought forth, and there is a probability of it being run on the Aix-les-Bains Circuit in Savoy.

The Automobile Club of France will thus have three great events for next season: The Grand Prix, a long-distance road race; the European Circuit, a 3,000-mile touring event through Europe for all classes of automobiles, and a tire race, in which tires or spring wheels will be given the importance usually attached to motors.

Racing events in Europe will not be lacking next year, the following big runs being assured: The Grand Prix of the Automobile Club of France; Ardennes Circuit; Florio Cup, on the Brescia Circuit; German road race on the Taunus Circuit.

It is true that the German Automobile Club has decided not to race next year, but the move just made by France will be very likely to change her decision. Count Sierpotorpft, although not one of the most enthusiastic racing members of the club, declared during a recent visit to Paris that if the Automobile Club of France organized a road race his club would do the same.

As to the Gordon Bennett cup race, it must be admitted that this trophy is now dead and buried, at least in its present form and so far as France is concerned. Some decision may be reached by the conference which is about to meet in Paris, but it is certain that it will not be competed for under former conditions.

What France desires, and what she will provide for in her new event, is a race open to all the world, three cars for each firm, or set of firms where the same license is used by several constructors, and a 350 to 400 miles run without controls. It is proposed—and the proposition is said to come from M. Brasier—that an unlimited number of tires should not be allowed, as in the past, but that each car should carry its own limited reserve and make all changes and repairs with the tools on board.

Many automobilists here appear to have lost faith in the Auvergne Circuit as the most searching automobile test, and as the result of this year's experience are more inclined to a road similar to the Long Island Circuit than to the one on which the Gordon Bennett cup was contested. On a short circuit each competitor is kept more closely in touch with his fellows and the race gains in interest and excitement. The Vanderbilt event also proved that the danger of competitors passing and repassing one another is not very serious. On the Ardennes Circuit, where the roads were good and a high speed could be maintained from beginning

to end, a larger proportion of cars failed to finish than on the mountainous Auvergne track. The Vanderbilt Cup Circuit, so much decried in France a few months ago, is now put forward as a model for the 1906 Grand Prix.

GORDON BENNETT RACE DECISION POSTPONED.

Special Cablegram.

PARIS, Dec. 17.—The delegates to the international race conference, before adjourning to-day, censured America for the bad organization of the last Vanderbilt Cup Race and decided to hold another conference in June to decide the fate of the Gordon Bennett race.

Voiturette Test Results.

PARIS, Dec. 5.—During the recent Voiturette contest around Paris, a portion of the road was so thickly strewn with nails that almost a complete disorganization of the contest resulted. Yesterday the committee of the Automobile Club of France met and decided that the stage from Paris to Mantes, on which the nail fiend had been at work, should remain as a part of the contest, the result of the seven days' test thus being:

Position.	Car.	Driver.	Penalty Points.
1.	Vulpes	Barriaux	241
2.	De Dion-Bouton	Lionel de Dion.	327
3.	De Dion-Bouton	Cormier	439
4.	Lacoste & Battmann	Gachel	502
5.	De Dion-Bouton	Bardin	561
6.	Grégoire	Tavenaux	1,334
7.	Lacoste & Battmann	Rochay	1,726
8.	Grégoire	Renoncé	3,437

De Dion-Bouton thus won the regularity cup, all three cars having finished the seven days' test. Cormier was particularly unfortunate. During the first five days he had not a penalty point against him, but when the nails appeared he suffered badly and lost his chance for first position.

The Vulpes car, which came out of the contest with the smallest number of penalty points, was, it is interesting to note, one completely mounted on the morning of the race. During the first day's run 65 points were lost, and although the terribly bad roads got worse rather than better not a single point was lost during the remaining five days. On the hill climb the car came out first, but on the kilometer level speed test and on the 500 meters standing start and finish 176 points were lost, making up the total of 241 penalty points.

All the competitors are not satisfied, and quite a number of protests came before the Automobile Club of France, all of which were overruled.

Lacoste & Battmann were particularly vexed at the club decision, declaring that they had lost their position through being told by a member of the commission that the nail-strewn section was annulled. As a public demonstration of the fitness of the car, they have sent away Gachel on the vehicle, which has just covered nearly 800 miles, on a run from Paris to Bordeaux and back, a total distance of about 700 miles. A further demonstration of a rather unusual nature is also being undertaken. A complete runabout will be fitted up and make the journey from Paris to Bordeaux and return in fifty hours. Every part of the car will be new, never before fitted together, and at 6 o'clock in the morning every part will be stamped, the assembling begun two hours later, and the car sent away on its 700-mile journey at about 2 o'clock in the afternoon.

Foreign News Notes.

The Herkomer contest has been settled so far as the route is concerned at a meeting of representatives of the German, Austrian and Bavarian clubs in Berlin. The schedule for the tour is: First day Frankfort-on-Main to Munich; second day, Munich to Linz; third day, Linz to Vienna; fourth day, a rest in Vienna; fifth day, Vienna to Klagenfurt over the Semmering mountains; sixth day, Klagenfurt to Innsbruck; seventh day, Innsbruck to Munich. Speed trials in the Forstenried Park will follow the conclusion of the tour.

* * *

The 90-horsepower Mercedes of the late Clarence Gray Dinsmore has been bought by the German Emperor, whose attention was drawn to the car during the last army maneuvers, when Mr. Dinsmore placed it at the disposition of the staff.

* * *

The German Automobile Club has decided to drop the projected international road race over the Taunus course for next year, owing to the desire of the home industry not to be disturbed in its attention to touring car manufacture.

* * *

The British Motor Yacht Club has obtained the charter of the late Admiralty Yacht *Enchantress*, which will be used for the purpose of a floating clubhouse on Southampton waters. The vessel is well suited for the purpose, as she is fitted with a large number of state rooms and has ample saloon accommodation.

* * *

The Auto-Cycle Club of England is promoting a reliability tour from Land's End to John O'Groat's in June, open to all types of motorcycles, including tri-cars. Selection trials for the motorcycle international cup race to be held in Vienna, by virtue of Wondrich's victory in France this year, and a tour to the Austrian capital are some of the chief events in the coming season's program.

* * *

Among six cash prizes aggregating $8,000 offered by the King of Italy for international competition on the occasion of the exposition in Milan in 1906 is one of $1,000 for automobile boats.

New Decauville Garage.

Coincident with the announcement of the completion of its handsome new garage in Broadway and Fifty-sixth street, New York, the Decauville Automobile Company makes public the information that in addition to the Decauville and Franklin cars, it has arranged for the New York agency of the Charron, Girardot & Voigt (C. G. V.) cars and the English Daimlers. Thus the company now has the representation in America of two leading French cars, one of the most prominent English machines, and an American air-cooled automobile that stands second to none. In addition to the foreign cars, this company holds the American patent and selling rights for many French accessories and supplies.

The new home of the company, which is illustrated in the accompanying engraving, is claimed to be the largest structure in the world erected as an automobile retail and storage establishment and maintained as

FRONT ELEVATION OF NEW BROADWAY GARAGE OF DECAUVILLE AUTOMOBILE COMPANY.

such. Its construction and occupation accentuate the "uptown exodus" of New York automobile agencies and the creation of a new automobile center near the Columbus Circle entrance to Central Park.

Although only three stories high at present, the steel frame has been constructed with a view to continuing the structure to a height sufficient to provide for the ultimate accommodation of 1,000 cars.

The office and salesroom will be in a part of the building having a 50-foot frontage on Broadway and extending back 60 feet. The garage and repair departments occupy a building in the rear of this that extends entirely through the block from Fifty-fifth to Fifty-sixth streets, a distance of 200 feet and having a frontage on both streets of 75 feet.

Sundries and supplies will be carried in the accessories department in a separate building standing on a piece of land 25 by 70 feet which extends from the middle of the Broadway front of the block to the garage in the rear, with which it is connected.

The business plans of the company for the future are coextensive with the increased facilities it will have following its occupation of these fine new quarters.

New Atlas Trucks.

A type C heavy delivery wagon of about 2,500 pounds carrying capacity fitted with a 25-horsepower Libby twin-cylinder, two-cycle vertical motor is to be put out early in the spring by the Knox Motor Truck Company, of Springfield, of which Harry Knox is president. This delivery car will supplement the two-ton and three-ton Atlas heavy trucks designated types A and B. The Springfield company has acquired the exclusive right to use the Libby engine on commercial vehicles throughout the world.

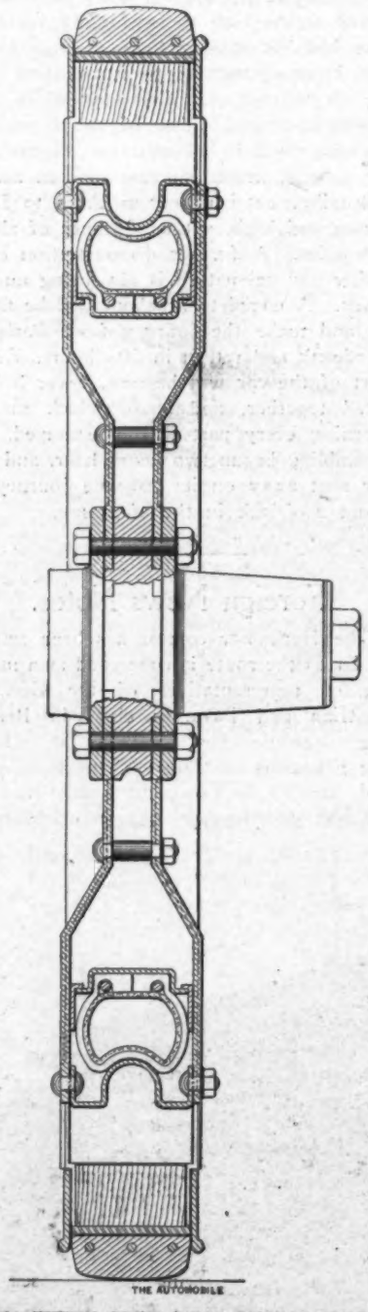
One of the three-ton Atlas trucks was delivered recently to the E. B. Eddy Company, of Hull, Canada. It is claimed to be the first automobile truck of any description to be used in the Province of Quebec.

Last week the Springfield Gas Light Company received delivery of the first one of the improved 1906 model Atlas trucks yet delivered. All future and deliveries for the coming season will be of this type, in which the following changes and improvements have been made:

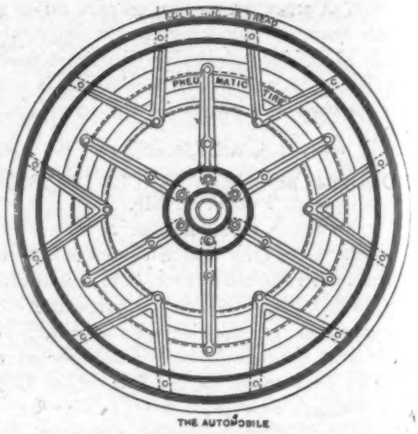
The front end of the main frame has been mounted upon the front springs instead of being connected directly to the front axle; a 5-inch side frame with heavy reinforcements is used instead of a 4-inch frame; a 4-inch cross angle with stronger attachment is used under the engine instead of a 3-inch angle; the carbureter has been improved to give, it is claimed, 15 per cent. more power and better regulation; spark lever on the steering wheel has been discarded, the spark now being automatically retarded in a very simple way; 6-inch solid tires replace the 5-inch tires on the three-ton truck and the 5-inch tires are used on the two-ton truck in place of 4-inch tires; hardened plates have been placed where the body rides on the springs; the bodies have been refined in appearance and other minor improvements have been made.

Puncture Proof Pneumatics.

One of the latest of the many attempts that have been made to devise resilient wheels to take the place of pneumatic tire wheels of the usual type is illustrated by the accompanying line engravings, and is called the iron-tired pneumatic wheel. The Iron-Tired Pneumatic Wheel Company is located at 259 Fifth avenue, New York.



AUTO WHEEL WITH SOLID TIRE IN CONTACT WITH GROUND AND CONCENTRIC PNEUMATIC TIRE.



SIDE VIEW OF WHEEL.

The principle of the device is that of a wheel built within a wheel with a pneumatic tire between them, two sets of short spokes being employed to keep the two wheels in the same vertical plane. By inspecting the drawing it will be seen that the inner wheel includes the hub which is mounted on the axle of the car. From the hub radiate short, flat steel spokes, the outer ends of which are bolted to a steel rim whose inner surface is of convex cross section; this is the tread of the inner wheel and rests on the outer circumference of the pneumatic tire. The pneumatic is attached to a rim whose diameter is, of course, smaller than that of the rim first referred to; this inner rim is rigidly connected with the outer rim of the wheel, to which the road tire is attached, by pairs of spokes arranged, as the drawing shows, to form a series of triangles. The result of this arrangement is that the weight of the car is carried on the top of the pneumatic tire, the spokes of the wheels being under tension. The tire is thus subjected to no wear from the road and is removed from danger of puncture. The road tire may be of any desired kind; steel would naturally suggest itself for heavy commercial vehicles and solid rubber for pleasure cars and light delivery wagons. The manufacturers state that the resiliency of this wheel is fully equal to that of an ordinary wheel with a pneumatic tire, while the speed possibilities are greater and the wheel is extremely strong and can go on any road that an ordinary iron-tired wheel could travel.

The prospective automobile tax in Germany has alarmed the makers, as the coming into force of such a law means a crippling of the trade. The Imperial Ministry of Finance hopes to realize a fund of 3,500,000 marks ($700,000) by the tax, which for the single car would mean an annual payment of 100 to 150 marks ($20 to $30).

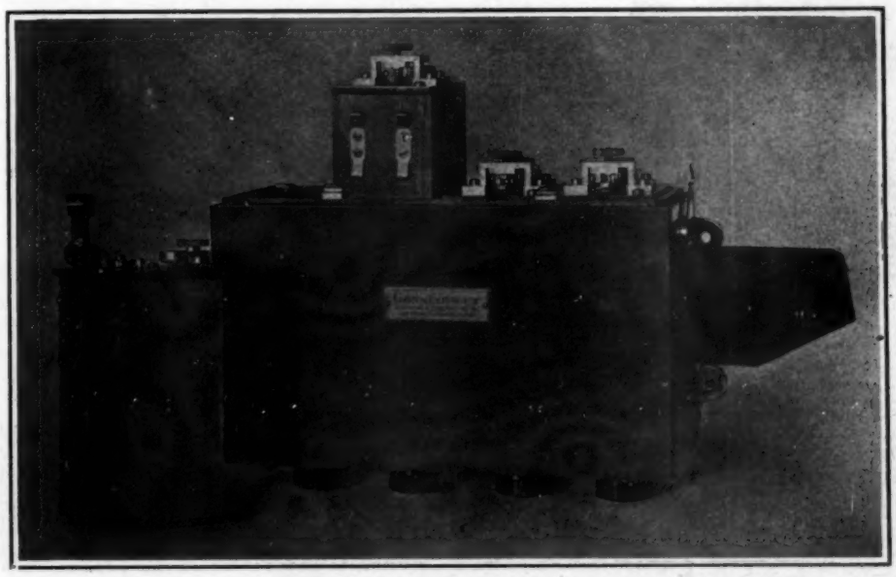
Automobiles do raise a good deal of dust on Long Island, and that's a fact. They also raise a good many mortgages when the farmer gets his scorching victim in a corner.—New York *Telegraph*.

Connecticut Spark Coil.

A high-tension ignition coil that possesses a number of claims upon the attention of automobile builders and owners is offered in the market under the name Connecticut, by the Connecticut Telephone and Electric Company, of Meriden, Conn. This coil, which is illustrated herewith, is built on the unit system, each of the four coils composing the standard style being separately and independently removable. The coils are arranged in pairs in the mahogany case, with a partition between the two pairs, and each coil is self-contained in a neat wooden case with hard rubber insulated top. There are no binding posts whatever on the individual cases, simple automatic devices taking their places. When the unit coils are lowered into place in the large case a contact plate in the base of each rests upon a spring in the bottom of the coil box which effects the connection for the secondary current. Attached to the outside of the box beneath where the low-tension primary current wires are attached, numbering five in all.

As the four individual coils are instantly removable and interchangeable without the need of disconnecting and connecting up again any wires by hand, a ready means is provided for testing the electrical condition of the individual coils; should there be defective sparking in any cylinder a transposition of coils will at once determine whether or not it is the coil that is at fault.

Particular attention has been devoted by the makers to the electric qualities of the coil and to the mechanism of the vibrator, with the result that not only is most unusual convenience in adjustment secured, but the coil is remarkably efficient and reliable, it is asserted. The core of the coil, instead of being made of a single piece of soft iron, is composed of a multiplicity of wires, and there are three windings of wires around the coil instead of the customary two windings. thus developing an intensely energetic



SPARK COIL BUILT ON UNIT SYSTEM, WITH ONE OF THE UNITS REMOVED.

these springs are four hard rubber insulated sockets or aprons, to receive the ends of the large cables for the high tension current, and to prevent water that may run down the box from coming into contact with the cable ends and cause short circuiting.

Positive and negative connections for the primary current are effected by means of eight vertical copper strips sunk into the inner side of the large case and an equal number of metal springs screwed two to the front side of each separate coil. A bevel edge on the rear of the hard rubber top of the coil forces the top forward when the coil has sunk entirely home, insuring perfect contact between the springs and copper strips. When the coils are in place a spring catch holds each firmly in position, preventing any possible jolting upward.

By the construction described, the only thumb-screw binding posts required are five, on the outside bottom of the coil box.

secondary current on a low amperage consumption. The makers of the coil claim that they never have found a case even in engines of the highest compression, in which they could not fire the charge perfectly on one-quarter ampere of current per hour, and know of cases in which cars have been run perfectly on one-twentieth of an ampere. Such low consumption of current, of course, contributes to long life of the batteries. As the rate of consumption by a coil depends in some measure also upon nicety of adjustment of the vibrator, it is reasonable to assume that much of the good result obtained by the Connecticut coil is due to the great care expended in devising and constructing the vibrator.

The vibrator itself is made of a broad strip of special spring metal, chosen after experiments had been made with more than a score of different metals. It is of the simplest form known and is arranged to give the most rapid vibration possible, resulting in the production of an intensely hot spark. Adjustments of both the vibrator blade and the contact point on the bridge are self-locking by very ingenious thumb screw and nut arrangements. The bridge is screw-threaded to receive the thumb-screw, which carries at its lower end the upper contact point and has a hexagonal recess on the under side of the arch to receive a nut. This recess is deep enough to hold a small steel coil spring above the nut. Whatever tension is put on this spring by hand when the thumb-screw engages the nut is maintained permanently and serves to keep the screw from working either up or down and changing the adjustment of the point.

A somewhat similar arrangement locks the adjustment of the vibrator blade, which is socketed in a brass plate pivoted at its front end in a brass holding piece and having a thumb-screw and coil spring at its rear end. When it is desired to clean the contact points, the bridge can be readily removed. The feet are slotted so that when the screws that hold it to the top of the coil are loosened slightly the bridge can be slipped off.

The workmanship on all the visible parts described is of superior character and the coil in its entirety presents a very neat appearance. As evidence of the quality of the Connecticut coil, the manufacturers point to the record made in the Long Branch nonstop endurance contest last August by the Corbin car, which was equipped with one of these coils, and to a mileage of 12,000 miles without touching the adjustments, which was made last summer by F. C. Billings, of Hartford, Conn. Stock coils were used in both machines.

CHICAGO INTERESTED IN AIRSHIP.

CHICAGO, Dec. 18.—The Chicago Aero Club, which is being fostered by Dr. Harold E. Thomas, has received new impetus since the flight of Horace B. Wild in his new airship last Wednesday.

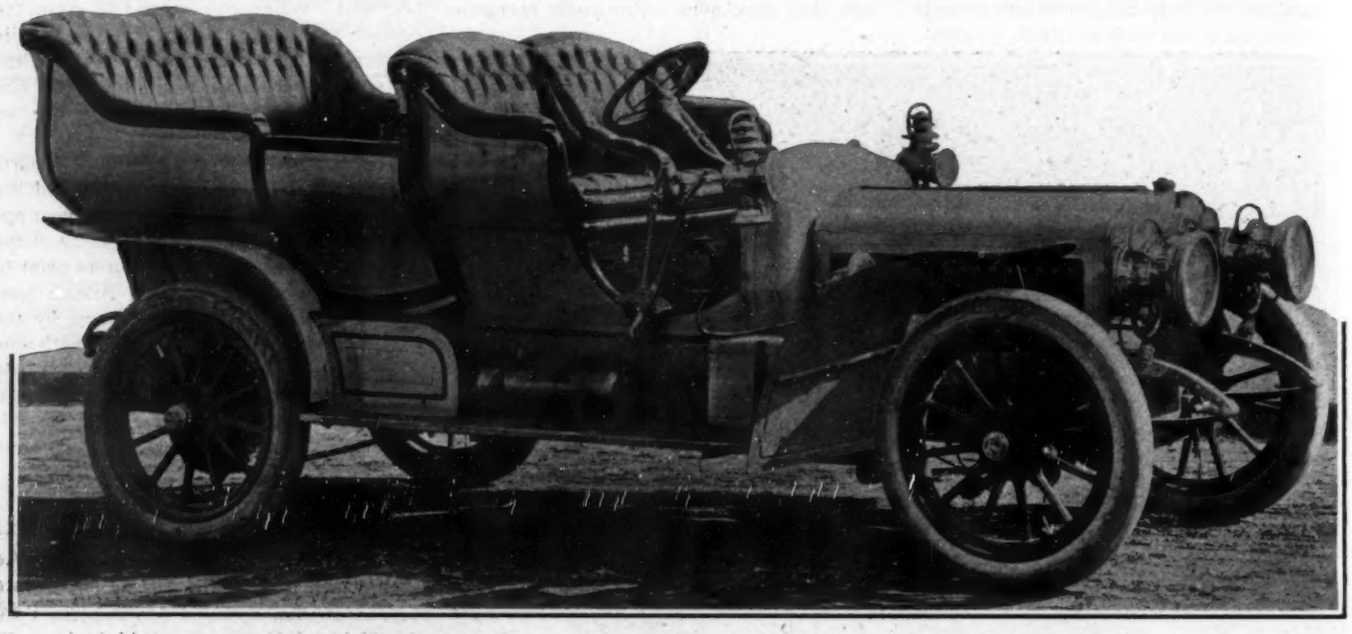
This was the initial attempt to fly the ship, and the trial was fairly successful. An altitude of 2,500 feet was reached and Wild sailed about for nearly half an hour. A few minutes after he had started the gasoline gave out and he lost control of the ship. The wind carried it higher and higher, and the aeronaut saw that his only hope lay in getting the gas out of the bag. The cold had so numbed his hands that he could not untie the rope that held the valve, and he was forced to bite at the knots with his teeth, meanwhile holding onto the net with his hands. The trail rope was finally caught by a crowd of men and boys and the car brought to a stop.

The airship is the property of A. J. Jones and is called the *Eagle*. It is 70 feet long and is similar to Roy Knabenshue's ship. The engine is 12 horsepower and was designed by Wild, who is an electric engineer.

Thomas 50-Horsepower Flyer for 1906.

LIKE many other American manufacturers of automobiles, the E. R. Thomas Motor Company, of Buffalo, N. Y., has made only detail changes in designing its 1906 car; some of the details changed are important and interesting, however. In appearance and general arrangement the car is similar to the 1905 four-cylinder Thomas Flyer, the characteristic body, which has been patented, being still a feature. Generally speaking, it may be said that the 1905 50-horsepower Thomas is a touring car of the conventional type, with four-cylinder, vertical, water-cooled engine, four-speed sliding gear transmission, side chain drive, pressed steel framing and side-entrance body. Only one model will be built for 1906.

Perhaps the most important changes made in designing the new car are in the substitution of mechanically operated inlet valves for the automatic valves used on last year's engine, and the placing of the valves on opposite sides of the engine instead of all on the same side, with the inlet valves on top; and in the use of a disc clutch in place of the leather-faced cone formerly fitted.



THOMAS FLYER MODEL 31 FOR 1906, FITTED WITH 50-HORSEPOWER, FOUR-CYLINDER ENGINE.

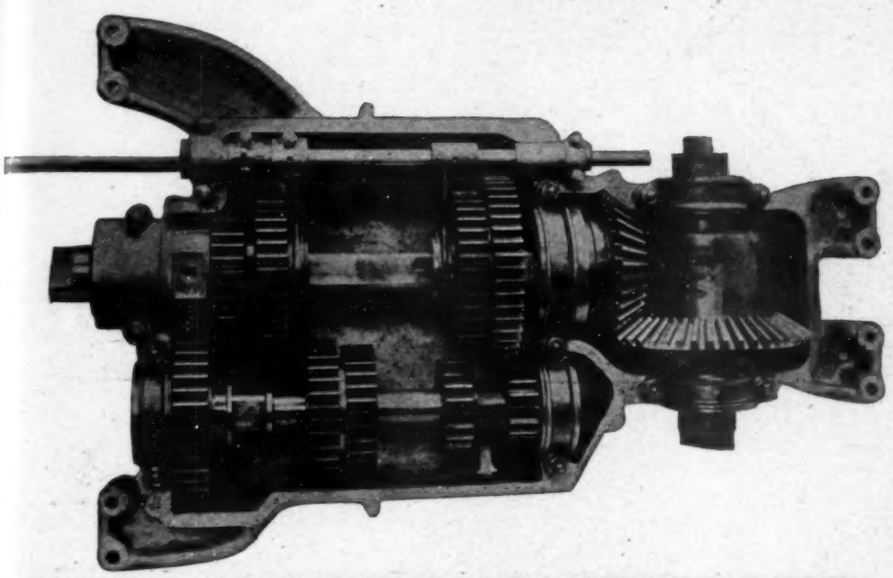
The individually cast cylinders have integral heads, water jackets and valve chambers, with the usual plugs over the valves, through which the latter may be removed; the bore and stroke are each 5 1-2 inches. The valves, located on opposite sides of the cylinders, are all alike and mechanically operated. The plugs over the valves are held down by steel yokes, there being a separate yoke for each valve opening. The camshafts, one on each side, are driven direct from the crankshaft and run in babbitt bearings lubricated from the oil in the crankcase, except the front bearings, which are fitted with grease cups. The camshafts are driven from the front end through a steel pinion and fiber gears, covered by a protecting metal guard. The cams act on short pivoted levers, which in turn act on the push-rods; the levers carry rollers to take the cam thrust. Each cam is covered by a little housing of its own, with an opening into the crankcase; between the housings the camshafts are exposed.

With the exception of the connecting rod bearings, all the bearings in the motor are babbitted; the connecting rod bearings are of bronze and the rods are steel forgings. The five crankshaft bearings are all attached to the upper half of the horizontally divided aluminum crankcase. The main crankshaft bearings, at the ends of the crankcase, are lubricated by chain oilers dipping into capacious oil-wells; the supply of oil is said to be sufficient for a thousand miles running. The intermediate crankshaft bearings are lubricated by splash, while the cylinders are oiled by force feed. The crankpins and the piston pins are drilled through and are adapted to carry oil to the bearings of the connecting rod; the hollow pins are at the same time lighter than if solid.

Ignition is by jump spark; the most interesting feature of the ignition system is the distributer. A single coil is used, located on the dashboard; the distributer is also on the dashboard, and is at the same time a high-tension distributer and a primary contact maker, the high-tension current being regulated at the front and the primary current at the back of a cylindrical casing. The timer is driven by bevel gearing from the exhaust camshaft, a vertical intermediate shaft being fitted with a universal joint. Current is furnished by a storage battery. The spark plugs are inserted in the inlet valve chambers, and the current is carried to them through cables inclosed in a fiber tube. A lever on the steering wheel controls the time of ignition, in the usual way.

Circulation of the cooling water is maintained by a gear-driven gear pump, located on the exhause side of the motor and driven from the exhaust camshaft. The radiator is firmly braced by means of steel rods, with turnbuckles for adjustment, extending backward. The fan is supported in bearings carried by a framing attached to the radiator, and is driven by a belt which can be adjusted as to tension.

An intersting feature of the Thomas car is the clutch, of the disc type, but differing from the majority of disc clutches now in use. The clutch shaft has its forward end squared, and on the squared portion slides the steel hub of a manganese bronze spoked disc 20 inches in diameter. Studs are screwed into the rim of the flywheel clear of the edge of the disc, and on these studs are placed two cast iron discs, holes being drilled in the discs to correspond with the studs; between the cast iron discs is the bronze disc. The outer iron disc carries pivoted levers whose outer ends enter slots cut in extensions of the studs already referred to, and whose inner ends are adapted to be pressed toward the flywheel by a ball bearing collar on the sliding sleeve by which the clutch is controlled. Thus, when the sleeve is pushed forward by the usual clutch spring, the pressure on the levers tends to bring the iron discs (rotating with the flywheel) together, the bronze disc is pressed between the iron discs and, if the pressure applied is sufficient, is forced to rotate with them, carrying with it the clutch shaft. The forward end of the clutch shaft is carried in a bearing formed by boring out and bushing the end of the crankshaft. When the clutch is disengaged the cast iron discs are



THOMAS SLIDING GEAR TRANSMISSION, GIVING FOUR FORWARD SPEEDS AND REVERSE.]

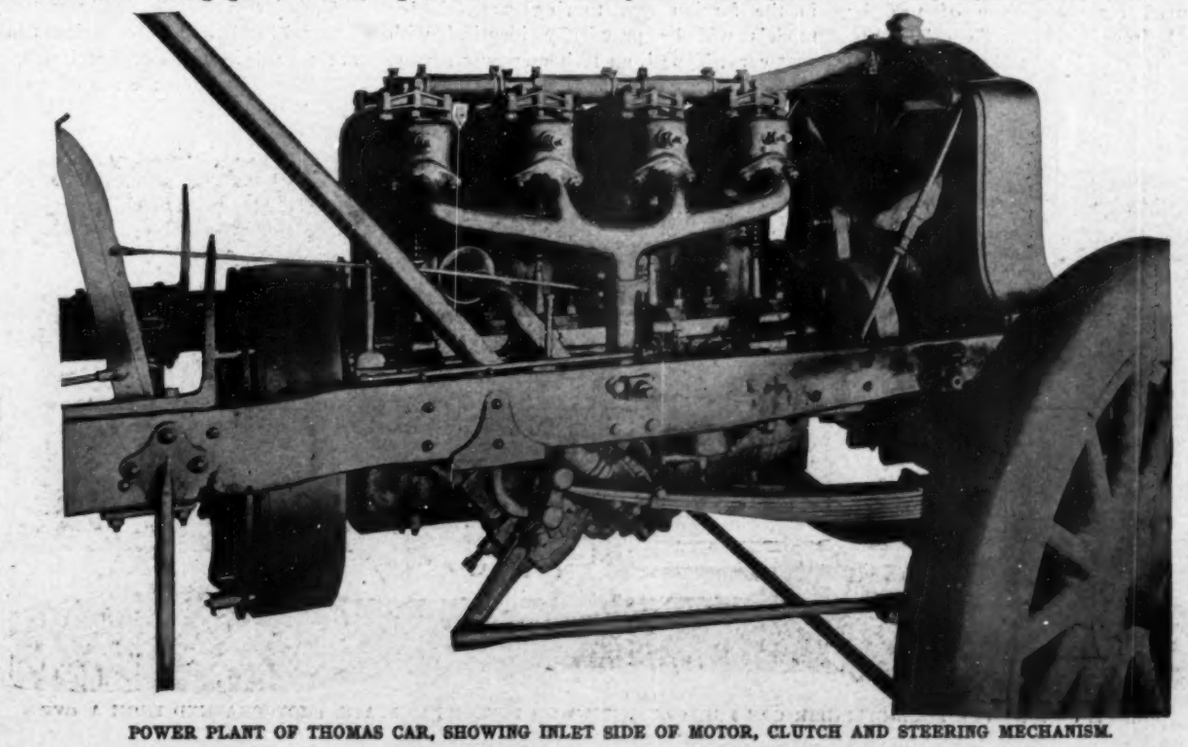
forced apart by springs, so that there is no drag. Adjustment for wear is readily made by means of set-screws, against which the outer ends of the levers bear; the tension of the clutch spring is also adjustable by means of a nut working on a thread cut on the clutch shaft.

The sliding gear transmission of the 1906 Thomas car gives four speeds forward in place of the three speeds provided in the 1905 machine; the drive in the high gear is direct without any gears in mesh except, of course, the bevel driving gears. Non-adjustable ball bearings have been substituted for plain bearings, and the control is by a lever of the selective type. There are two shifting units, each with its separate shifting rod. One of the advantages of the selective lever for shifting gears is that, starting from neutral point, any speed out of the four can be engaged at once without going through any of the intermediate gears; and, if any gear is engaged, the neutral point can be reached at once without passing through other gears. The engraving of the transmission gear with the upper half of the aluminum case removed shows the direct drive clutch locked. When any of the intermediate speeds are engaged, the largest gear on the countershaft meshes with the pinion on the forward end of the primary shaft; when the claw clutch of the direct drive is thrown in, the larger gear is automatically moved out of mesh, so that the countershaft is stationary. When the direct drive is disengaged, the gear returns to its position in mesh with the pinion. The gears have teeth of 6 pitch and 1 1-4 inch face and are hardened. An interlocking device holds the idle sliding gears stationary so that they cannot shift while they are not in use; the gears cannot be shifted until the clutch is fully withdrawn, and the clutch cannot be engaged until the gears have meshed properly.

The differential, composed of spur gearing, occupies a rearward extension of the gearcase, together with the bevel driving gears. The two halves of the jackshaft are driven through universal joints, the arrangement being clearly shown in the engraving, showing the joints just outside the differential casing. The sprockets on the outer ends of the jackshaft are concave, the shaft bearings being so placed that the chain pull is directly in line with the center of the bearing. These bearings are ball bearings of the non-adjustable type, as are also the rear wheel bearings; the latter are double, so that the chain pull is taken between two bearings.

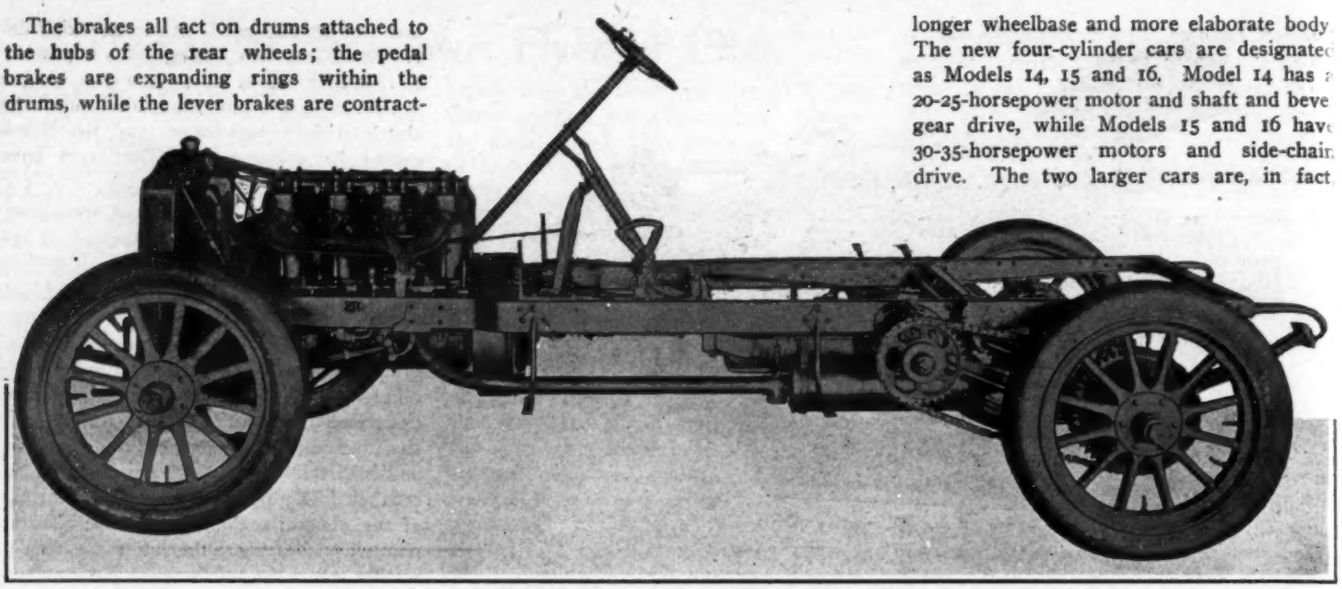
The main frame, narrowed in front, and the cross frames are of the usual pressed steel construction; no front cross member is used, the arms of the engine crankcase, which are bolted direct to the main frames, serving the purpose. The rear cross member and the two cross members carrying the transmission gearcase and bracing the center of the framework are hot riveted to the main frames, large gusset plates adding stiffness.

The springs are long, 52 inches front and rear, and are of the semi-elliptic type, 2 1-4 inches wide. The wheelbase of the car is 117 inches and the tread standard; the wheels are 34 inches in diameter, with 4 1-2-inch tires, and run on ball bearings. The steering gear, of the worm and sector type, is readily adjustable for wear.



POWER PLANT OF THOMAS CAR, SHOWING INLET SIDE OF MOTOR, CLUTCH AND STEERING MECHANISM.

The brakes all act on drums attached to the hubs of the rear wheels; the pedal brakes are expanding rings within the drums, while the lever brakes are contracting bands on the outside of the same drums. The sprockets that carry the driving chains are bolted to flanges formed on the outside of the drums. The bands of the emergency brakes are lined with leather; equalizers are fitted to both sets, so that the pull on the brakes is evenly distributed. Adjustment for wear is amply provided for. The axles, both front and rear, are of steel of I-beam cross section; the front axle is dropped while the rear axle is straight; the steering knuckle forks are forged integral with the ends of the front axle.



CHASSIS OF THOMAS FLYER MODEL 31, SHOWING EXHAUST SIDE OF ENGINE.

The engraving of the complete car shows the well-known Thomas lines, with recessed dash containing two tool lockers, one on each side, as seen on the 1905 Flyer. The body is built throughout of sheet steel. A novelty is in the seating arrangements in the tonneau; two comfortably upholstered revolving collapsible seats are provided, so that the total carrying capacity of the car is seven passengers, the rear seat being amply wide for three adults. The front seats are of the popular divided type, and all seats are deeply and comfortably upholstered.

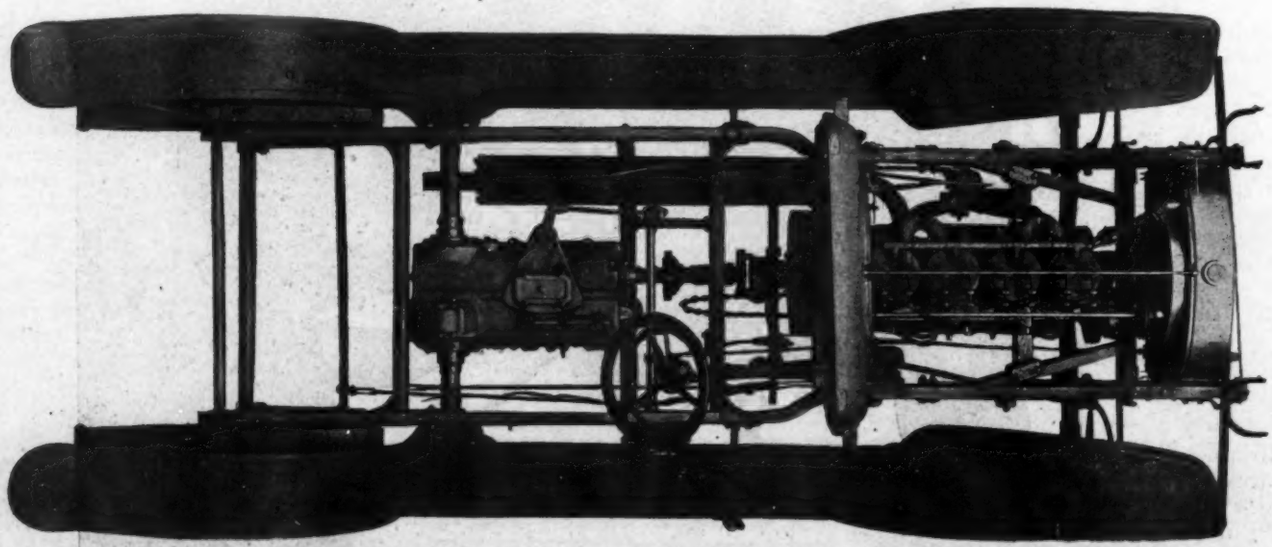
longer wheelbase and more elaborate body. The new four-cylinder cars are designated as Models 14, 15 and 16. Model 14 has a 20-25-horsepower motor and shaft and bevel gear drive, while Models 15 and 16 have 30-35-horsepower motors and side-chain drive. The two larger cars are, in fact, identical except for the body, which in Model 15 is a five-passenger, side-entrance touring body, while Model 16 has a limousine. The seventh model, Model 17, is a runabout with 12-14-horsepower, double-opposed horizontal motor.

All the four-cylinder cars are built on the same lines, the only differences being in dimensions and in the fact that the smaller car has shaft drive while the larger machines employ side chains. The 20-25-horsepower motor has cylinders of 4 inches bore and 4 1-2 inches stroke, while the 25-30-horsepower motor has cylinders of 5 inches bore and 5 1-2 inches stroke. The same description otherwise fits all three machines, so far as the mechanical equipment is concerned.

Cylinders are individually cast and have integral heads and water jackets; the valves are placed in the cylinder heads, side by side, thus obviating the use of special valve chambers. The valves are mechanically op-

Seven Rambler Models for 1906.

NO less than seven models will be included in the line of Rambler cars manufactured for the season of 1906 by Thos. B. Jeffrey & Co., of Kenosha, Wis. Of these three will be radical departures from the type of Rambler cars hitherto manufactured, as they will embody four-cylinder vertical motors, sliding gear transmissions and other features usually found in the foreign type touring cars. Three models will be practically identical with 1905 cars; Type I, an 18-horsepower surrey, Type II, a 20-horsepower surrey, and Type III, which is practically Type I with a



CHASSIS OF RAMBLER FOUR-CYLINDER CAR FOR 1906, WITH MUD FENDERS IN PLACE, PHOTOGRAPHED FROM ABOVE

erated through rocker arms pivoted to brackets secured to the cylinder heads; the long push-rods which actuate the rockers extend through guides into the crank chamber and are lifted by short levers actuated by the cams.

A single camshaft on the right-hand side of the motor carries all the cams; the cams can be reached for inspection through a cover held in place by hinged bolts with thumb-nuts. The cams are made in pairs, the two cams for each cylinder being made integral with a sleeve which is mounted on the camshaft. Rollers on the levers take the thrust of the cams. Valve heads and stems are made separate. The valves are set in cages screwed in place and made gas tight by fitted metal to metal joints. The valve end of the rocker arm is fitted with an adjusting screw by which the valve lift can be varied. When it is desired to take out the valve the rocker arm is removed by taking out the fulcrum pin, held in place by a split-pin, when the cage can be unscrewed. The cylinders have long water jackets and are bolted to a horizontally divided aluminum crankcase, the three bearings for the crankshaft being carried in the upper half of the crankcase, the lower half, as is customary in modern four-cylinder motors, serving mainly as an oil-well and dust shield. Nickel babbitt is used for the motor bearings. Rambler practice is followed in fitting the pistons with six rings each, placed in pairs in three grooves, two above and one below the piston pin. Oil grooves are cut near the bottom to catch and distribute to the cylinders the oil splashed up from the crankcase. The piston pin is prevented from protruding and scoring the cylinder walls by a ring, similar to the packing rings, which is fitted in a groove and passes over the ends of the pin. Connecting rods are of I-beam section with hinged big ends and the piston pin ends split and fitted with pinching screws.

Spark plugs screw into the cylinders just below the inlet valves. Current for the jump spark ignition is furnished by a storage battery; a quadruple coil is mounted on the dashboard, and the timer, on the top of a vertical shaft, is bevel-gear driven from the rear end of the camshaft. A peculiarity of the timer is that when it is moved to change the time of ignition the connecting wires do not move with it, so that breakage and accidental disconnection from this cause are obviated. Spring hooks are used to make connection with the spark plugs, while globe wire connectors of special design avoid the use of thumb-nuts at the timer.

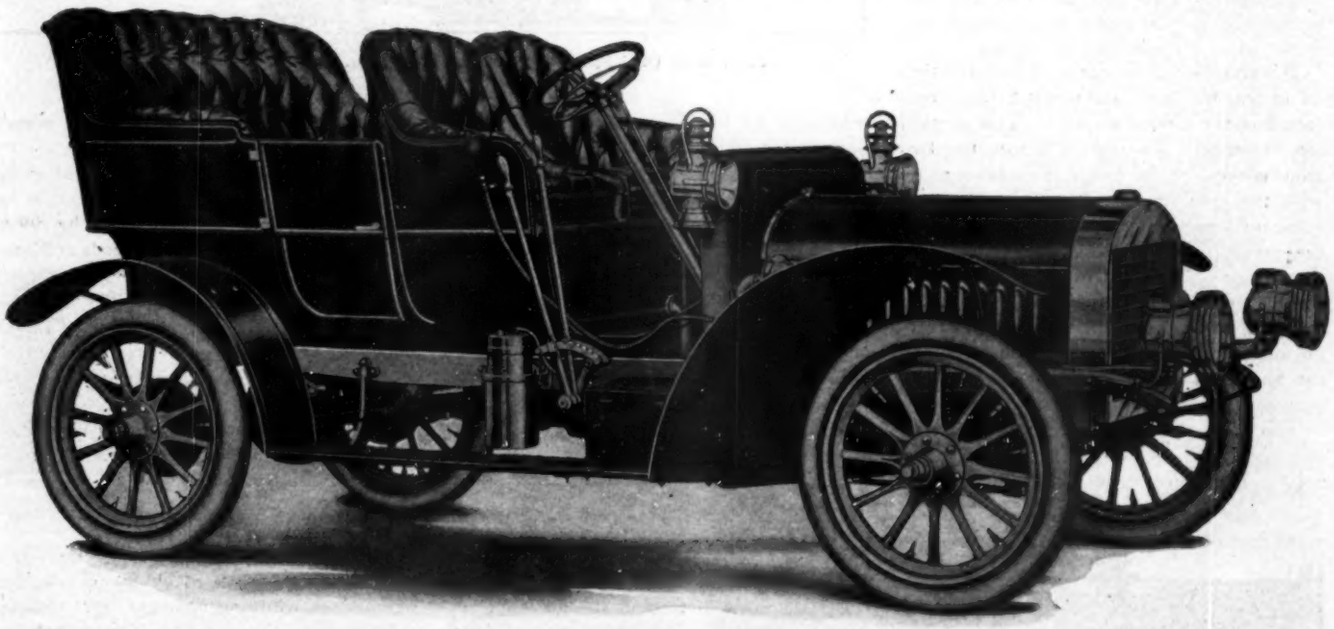
The front end of the camshaft drives the centrifugal circulating pump; the radiator is of flat brass tubes, 4 inches deep and 1-8 inch wide, extending vertically between top and bottom headers. Cross pieces are inserted to maintain the correct spacing between the tubes. The usual fan is placed behind the radiator and is belt driven from the forward end of the crankshaft. The fan is stamped out of a single piece of metal and the blades are afterward bent to shape.

The engine is suspended at three points. Two arms are cast on the upper half of the crankcase opposite the second cylinder, counting from the front, and are bolted to frame braces riveted across the front corners of the frame. The rear end of the motor is carried by a dropped frame upon which the rear bearing of the crankshaft rests.

The pulley on the fanshaft has two grooves, the first taking the fan belt and the second taking a belt driving a shaft which passes back to the dashboard and imparts motion to the McCord mechanical lubricator attached to the dash in view of the operator. Leads from the lubricator carry oil to each cylinder.

The carbureter is made in the Rambler factory and is automatic in action; it has the regular float arrangement for controlling the height of the gasoline in the spray nozzle, and an auxiliary air inlet which increases the air supply as the motor speed increases. A throttle valve is made part of the carbureter, and is operated by a tilting wheel on the steering column below the steering wheel. The same wheel shifts the time of ignition, the timer and throttle being interconnected; but when the throttle is opened as wide as the hand wheel can open it, there is a still greater opening, which may be utilized by pressing the foot-operated accelerator, though the spark cannot be further advanced.

The muffler, to which the exhaust gases are carried through a cast-iron manifold and an elbow, consists of a series of shallow double cones placed within a cylindrical shell. The two cones of each pair are placed so close together as to form a narrow passage for the gas, which is forced to pass through each pair of cones before reaching the outlet. A cut-out is fitted.



RAMBLER MODEL 14, 20-25-HORSEPOWER, FOUR-CYLINDER TOURING CAR, WITH SHAFT DRIVE AND SIDE ENTRANCE.

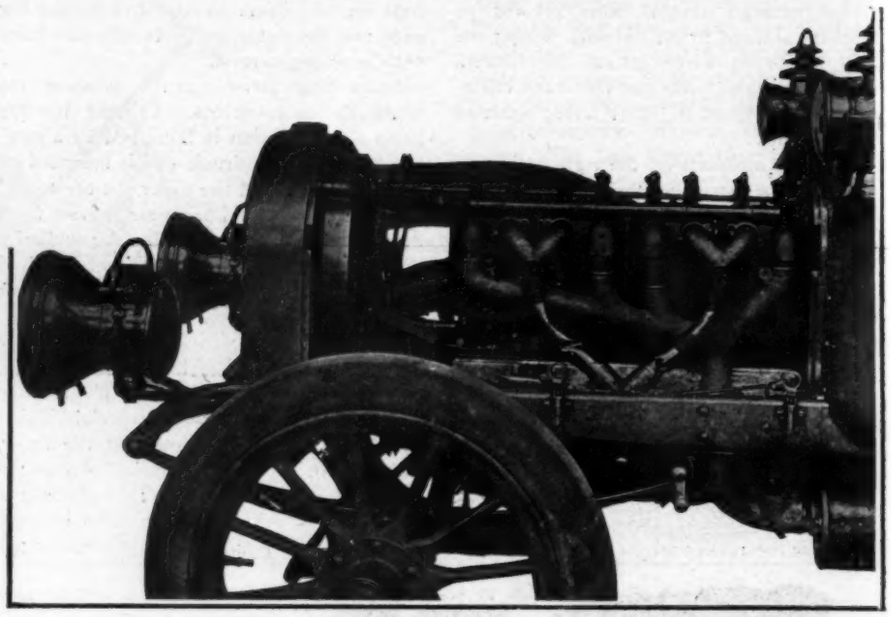
The leather-faced cone clutch which intervenes between the engine and the transmission gearing is of the customary type, though a departure from customary methods is made in enclosing the clutch spring and placing oil in the casing. Ball bearings take the thrust when the clutch is engaged. A joint is placed in the shaft between the clutch and the gearcase to take care of any temporary variations of alignment.

Three-speed sliding-gear transmissions are used, with direct drive on the high gear, the countershaft remaining stationary, and single lever control. The chain-driven car has a jackshaft driven by bevel gears in a

rearward extension of the gearcase, while the shaft-driven car has a universal joint just behind the gearcase. In the case of the shaft-driven car the thrust of the bevel-driving gears is taken by ball bearings. The gearshafts, like the crankshaft, run in plain bearings of nickel babbitt and are lubricated by the oil which is placed in the gearcase. Wire gauze strainers are placed in the oil-catching cups to prevent the entrance of grit and dirt to the bearings. The movement of the sliding gears on the square shaft is made easy by oil grooves cut in the shaft.

There is but one universal joint in the propeller shaft, placed just behind the gearcase. This is protected by a funnel-shaped housing filled with lubricant; the housing is bolted to brackets on the cross member of the frame at the rear of the gearcase; to the rear end of the housing are attached braces which extend to the outer ends of the tubular rear axle. By this arrangement the propeller shaft and the rear axle are maintained at right angles and a second universal joint is rendered unnecessary.

The framing of the car is of pressed steel, offset near the front, and pressed steel cross-members are riveted in place. Two pressed steel members are riveted across the two front corners of the frame at an acute angle with the side frames; these pieces are of sufficient length to carry the arms by which the motor is supported. The gearcase is supported, in the case of the chain-driven car, by the ends of the tubular sleeves of the jackshaft at the rear end and by a lug resting on a cross frame at the front end. In the shaft-driven car the rear end of the gearcase is supported from a cross frame by two bolts, while the front end is carried in a deeply dropped cross frame at a single point. Thus three point suspension is employed in all the four-cylinder models for both motor and gearcase.

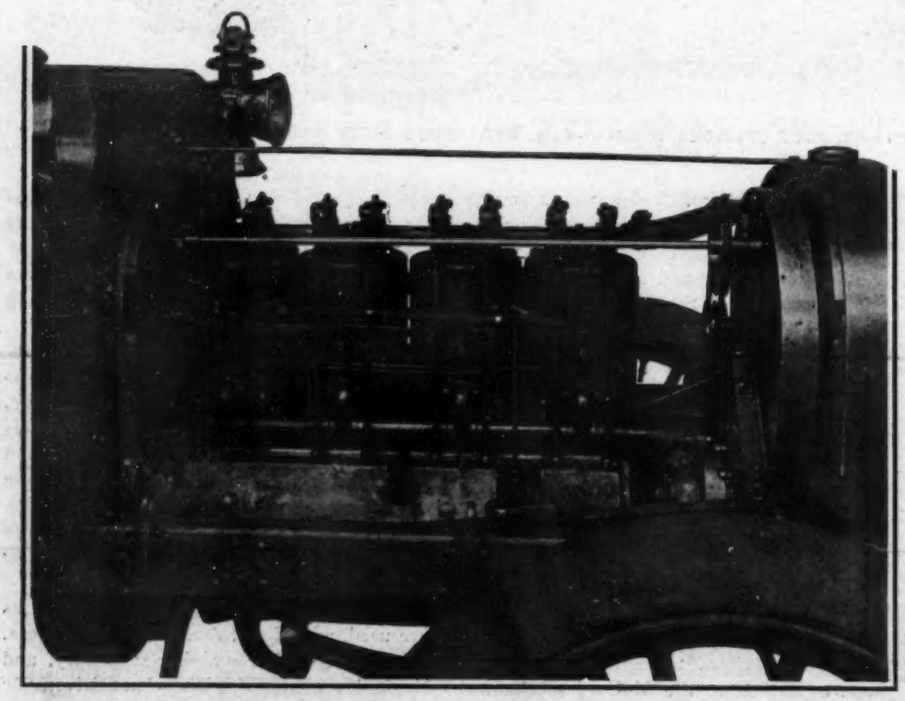


LEFT SIDE OF RAMBLER ENGINE, SHOWING INLET AND EXHAUST PIPES.

Two brakes are fitted, the emergency brakes on the hubs of the rear wheels and a regular service brake enclosed in the casing of the differential. The hub brakes are of the internal expanding type and are carried in drums made integral with the hubs. A compensating device insures an equal pull on each side when the emergency brake is applied.

The wheelbase of the larger car is 112 inches and the tread standard; the wheels are 34 inches in diameter and have 4-inch tires. On the smaller machine the wheelbase is 106 inches, tread standard, wheels 32 inches and tires 3 1-2 inches.

The touring car bodies are built after the straight-line design that is so popular at present; the dash is dished and the hoods are round-topped. The mud guards are large and running-boards extend between them, making steps for entering either the front seat or the side doors. The equipment which is included in the price of the car consists of a pair of acetylene headlights with separate generator capable of running both lights continuously for five hours; two oil side lamps, an oil tail lamp, tire repair outfit and a set of tools.



RIGHT SIDE OF RAMBLER ENGINE, SHOWING VALVE PUSH RODS AND WATER CONNECTIONS.

Motor Hose Wagon.

Automobiles are used by fire chiefs in a number of American cities for making quick runs to fires, and self-propelled fire engines are by no means unknown in this country. The hose wagon shown in the accompanying illustration is, however, somewhat of a novelty, though in France self-propelled fire apparatus has been rather extensively experimented with. The hose wagon illustrated is propelled by a gasoline motor and is in the service of the Torrent Hose Co., of Ithaca, N. Y. The Neustadt Automobile Supply Co., of St. Louis, Mo., by whom the machine was built, states that it is the first gasoline hose wagon to be constructed in the United States.

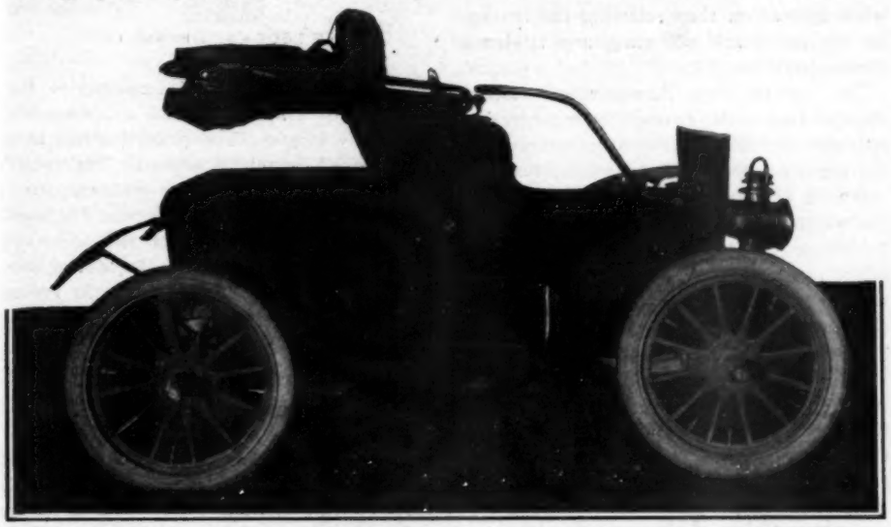
The car is propelled by a double-opposed cylinder horizontal motor of 22-25-horse-power, driving through side chains to the rear wheels mounted on a solid rear axle. The machine carries 2,000 pounds of hose and five men, including the driver. The body is of sheet steel with nickel plated brass railings; the floor is removable to give access to the engine. The wheels are fitted with three-inch solid internal wire tires.

The manufacturers state that an appropriation has been asked for with a view to introducing motor hose wagons throughout the St. Louis Fire Department in place of the present horse-drawn hose wagons.

Olds Piano Box Runabout.

The piano-box style of body is familiar to automobilists on account of its extensive use in small electric cars, and by many this type is preferred to other styles. The Olds Motor Works, of Lansing, Mich., has brought out for 1906 a gasoline runabout with a straight-line piano-box body to meet the demand for a small car built on these lines. The car, which is sold at the same price as the well-known curved dash Oldsmobile runabout, has also the same type of 7-horsepower single cylinder motor, lever steering, planetary transmission, starting from the seat and other features. As will be seen by the accompanying illustration, there is an unmistakable suggestion of "Oldsmobile" in the machine, notwithstanding the new body. Wood artillery wheels and large tires are fitted, giving the car a substantial appearance. The well-known Oldsmobile side springs are retained in this model.

GASOLINE HOSE WAGON BUILT FOR ITHACA FIRE DEPARTMENT BY NEUSTADT COMPANY.



OLDSMOBILE 7-HORSEPOWER RUNABOUT WITH PIANO BOX BODY AND STRAIGHT DASH.

Reo 16-H. P. Coupe.

Gasoline cars with enclosed bodies for use in winter or stormy weather are becoming exceedingly popular, especially in the metropolitan district, and no weather is too unpleasant for their use. One of the latest cars of this type is the coupé manufactured by the Reo Motor Car Company, of Lansing, Mich; the accompanying engraving shows the arrangement of the car.

The chassis is the same as that of the Reo touring car. The double-opposed cylinder motor, rated at 16 horsepower, is hung under the body and drives the live rear axle through a two-speed planetary transmission and heavy roller chain; a multiple disc clutch is used. The motor is similar to that of the runabout, except that two cylinders are used instead of one; the bore is 4 3-4 inches and the stroke 6 inches; cylinders, heads, water jackets and valve chambers are cast integral and the valves are mechanically operated.

Pressed channel steel is used for the framing; the body is suspended on full elliptic springs in the rear and half elliptic in front. The axles are tubular, the front axle being straight; the wheels run on roller bearings and are 30 inches in diameter, with 3 1-2-inch tires. The wheelbase is 90 inches and the tread 55 inches. Steering gear is of the worm and segment type, with the working parts enclosed in a dustproof casing. Gasoline capacity, 10 gallons, sufficient for 125 to 200 miles, according to road conditions; the capacity of the water system is 4 gallons. The radiator, circulating system, ignition, planetary transmission and other parts are similar to the corresponding parts

REO 16-HORSEPOWER CHASSIS FITTED WITH COUPE BODY, FOR USE AS A WINTER CAR.

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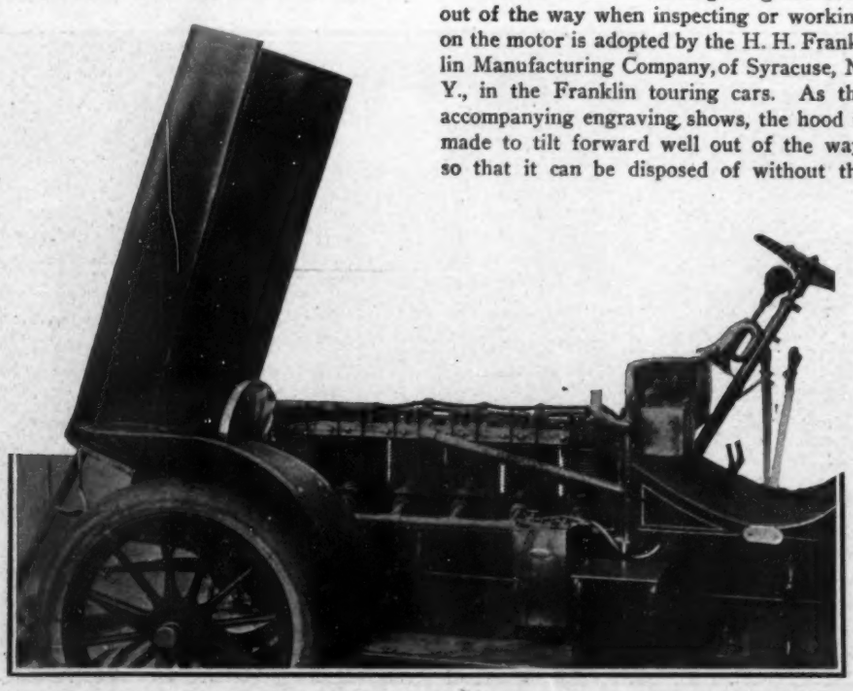

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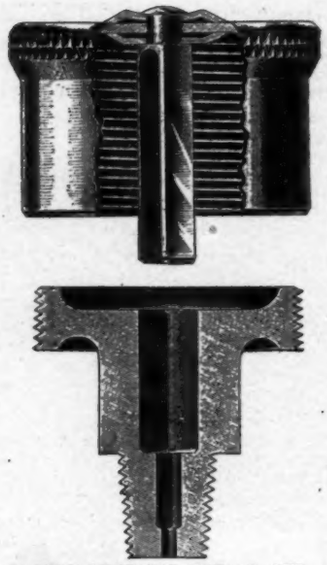

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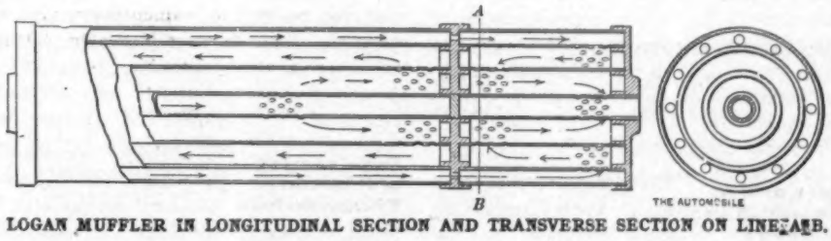

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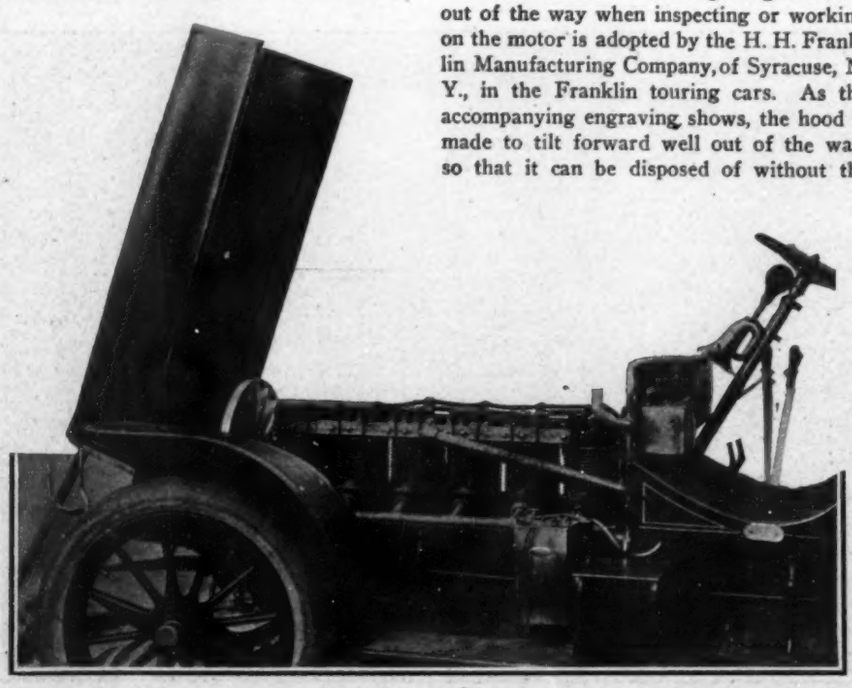

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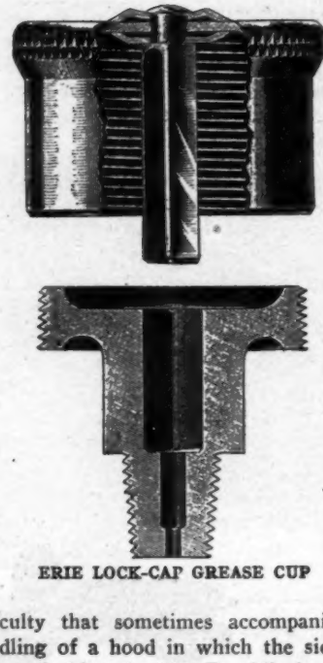

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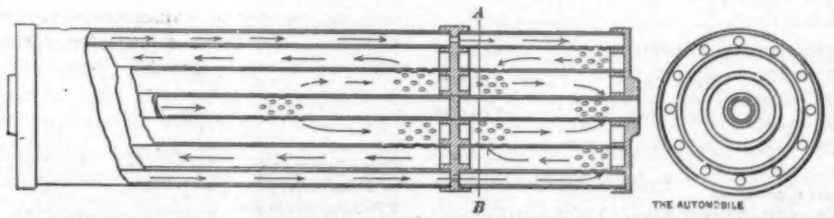

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Types at Foreign and American Shows. Early reports from the great Paris automobile show comment on the remarkable similarity in broad design, though not necessarily in detail, of the cars on exhibition, and the revival of the small car, familiarly known here as the runabout. For several seasons now unification of design has been a marked feature of the French exposition, and certainly the conditions surrounding the manufacture and use of cars in France have been favorable to the evolution of a type car. There is a closer relationship between the makers of cars in France, where the industry is largely localized, and all of it within the confines of a country of comparatively small size. In the United States the industry is more widely scattered, and the isolation of many plants of importance naturally produces a greater independence of effort. Then in the use of machines the conditions as to climate and roads in France and the adjacent European countries are not very dissimilar, and a type that is satisfactory in one place is likely to be equally acceptable in another. Here, on the contrary, there are enormous differences of conditions of use, in roads, and to a greater extent in climate, all of which to greater or less degree influence design and production. The spirit which is usually referred to abroad as "Yankee ingenuity" has also a very marked influence in individualizing native design.

Yet, with all these influences at work, there is an apparent co-ordination of effort in American design, which, however, finds expression in distinct types, each represented by a group of machines with many characteristics in common. There is the touring car proper, for want of a better designation, in which the foreign model is reproduced; vertical motor in front, sliding gear transmission and propeller shaft or chain drive. Then there is the class of lighter machines of more distinctly American type, usually with horizontal motor, planetary transmission and chain drive. There is also the distinctively American production, the air-cooled car, which, in skilled hands, has been developed to an extraordinarily high degree of perfection. And now—a later development, in the wider sense of the word—comes the car with two-cycle motor, which, especially in hilly country—of which there is an abundance on this side of the Atlantic—seems likely to establish another American type of machine. And in no other country has the steam car been developed as highly in both the touring and runabout classes as in America.

While in dimensions and general artistic ensemble the coming American shows may not class with the great Paris Salon, yet in real engineering and popular interest they will not be in any way inferior, and will certainly show a much greater freedom from the spirit of imitation.

✷

Development of Planetary Transmissions. Planetary transmission gearing for gasoline pleasure automobiles, especially of the lighter types, has been developed by American manufacturers as an almost essential part of the equipment of the American automobile, and in its modern form the planetary transmission possesses peculiar advantages. The ease with which it is controlled renders it particularly suited to automobiles operated by inexperienced persons, while the fact that the drive is direct on the high speed, which is the speed used for all ordinary running, is an important factor in the efficiency of the machine.

While the utilities of the planetary gear for light cars are generally admitted, its suitability for heavy commercial work and continuous hard low-gear work is not so generally conceded by automobile manufacturers. It is therefore interesting to observe that a number of American manufacturers of gasoline commercial cars having carrying capacities of from three tons downward, are regularly equipping their machines with planetary transmission gears of heavy and special design. The fact that professional chauffeurs and experienced men cannot always be secured to operate commercial cars has doubtless had great weight with manufacturers in the choice of a transmission; in fact, one manufacturer of a two-ton gasoline truck states that this fact alone brought his firm to the use of planetary gears, and a special gear was designed for the work. Practical tests proved that the car could handle, without showing signs of weakness, overloads of fifty per cent. with the low gear in continuous use. On one occasion a run was made over twenty miles of roads so heavy with mud that the low gear was used exclusively, and at the end of the twenty miles the truck returned by the same route, still using the low gear; a thirty per cent. overload was handled in both directions. Subsequently the car was run several hundred miles in regular service, after which the transmission gear was taken apart and examined, and found to be in excellent condition, showing no abnormal wear.

Like many other devices that were at first so crude that their merits were hidden among faults, the planetary transmission, a device of American origin, has been improved and refined until the modern form is far more efficient, serviceable and reliable than the first models. It is the constant weeding out of imperfections, the unceasing effort to combine the greatest number of desirable features with the fewest disadvantages, and a refusal to acknowledge that any evil is a necessary evil, that tell in the long run, and save many a good mechanical idea from oblivion.

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Road Racing on Private Ground. Automobile speedways have long been the dream of speed-loving automobilists, and many have been planned in the vicinity of New York City. Hitherto none of these plans has been realized; but within the past few months a scheme has been worked out that appears to possess many of the features necessary to a successful solution of the problem, and which seems to be an amplification of a plan, described in THE AUTOMOBILE in the summer of 1904, to build a straightaway track from Floral Park to Hicksville, a distance of ten or twelve miles, part of the property involved being the same as is included in the new plans.

The idea is to build a thirty-mile speedway of approximately circular form on Long Island between Garden City and Farmingdale, the property involved being chiefly on the Stewart estate. The plans include, in addition to a fifty-foot dustless roadway with the necessary bridges, tunnels and inclosing fences, a grandstand where races may be started and finished, and first-class garages. The plan is said to be looked upon with favor by Long Islanders residing in the neighborhood of the proposed speedway, including the officials of Nassau County, in which the property lies. Robert Lee Morrell, president of the American Automobile Association and chairman of the Vanderbilt cup commission, is quoted in favor of the plan and to have expressed the belief that it will get beyond the paper stage. Engineers have already been over the ground and have made

estimates on the cost of road and other work, while the owners of the property involved have, it is reported, consented to grant a right of way at very reasonable figures.

AUTOMOBILE ENGINEERS' DINNER.

The first formal meeting of the Society of Automobile Engineers will be held on January 16, 1906, at the New Grand Hotel, New York, after an informal dinner. The dinner is set for 6 o'clock, and for half an hour previous the guests will occupy themselves in becoming acquainted with one another. At 8 o'clock the meeting will convene. Papers will be read on the following subjects: Materials for Automobile Construction; Design and Construction of Carbureters; the Six-Cylinder Motor. The reading of the papers will be followed by a discussion by the members, after which a brief business meeting will be held.

There are more than fifty automobile engineers already on the membership list; the objects of the association are purely technical and educational. The date has been set during show week, this being a very convenient time for those interested in such matters; it is not unlikely that this dinner will be only the first of other meetings during show week.

Members and their friends who desire to obtain tickets for the dinner may do so by applying to the secretary of the society, E. T. Birdsall, 136 West Thirty-eighth street, or to the chairman of the dinner committee, H. M. Swetland, Flatiron Building, New York. The dinner is to cost $4 a plate.

VERMONT GRANGE "RESOLUTES."

MONTPELIER, VT., Dec. 16.—At the final session of the thirty-fourth annual meeting of the Vermont State Grange, in this city last Thursday, the automobile question was treated in the following words:

"*Resolved*, That the automobile question greatly concerns the interests of our rural communities. Accidents of the most shocking nature have not been uncommon, and in many sections travel has been reduced to the driving absolutely necessary for the transaction of business, depriving pleasure driving for fear of accidents. That autoists have equal rights we do not question; but the Grange should stand together in the enactment and enforcement of wise laws, with sufficient penalties attached for their violation, which will cause less reckless driving on our streets."

A telegraphic report received from Flagstaff, Arizona, December 19, states that Percy F. Megargel and his companion, David F. Fassett, are lost in the snow in the mountains west of Flagstaff, and relief expeditions with the necessary supplies have been sent to search for them. The tourists left Williams for Flagstaff on Friday, December 15, and up to the time of the despatch had not been heard from.

Pennsylvania-Philadelphia License Conflict.

PHILADELPHIA, Dec. 18.—Common Pleas Court No. 4, in the City Hall, was crowded to the doors last Thursday, when the first round of the legal battle between the Automobile Club of Philadelphia and the city authorities was fought. At the conclusion of the day's proceedings a full bench, consisting of Judges Willson, Audenried and Carr, reserved its decision, although, in the opinion of the crowd, the automobilists' counsel won the argument.

The point at issue was as to whether the learned judges would grant a temporary injunction restraining the city of Philadelphia, the Mayor and the Director of Public Safety, on and after January 1, 1906, from continuing to enforce the local ordinance governing the regulation of automobiles, on the ground that that ordinance was diametrically opposed to the law passed by the state legislature last April, and which is to go in effect on the date mentioned. The city and state each claims the right to issue automobile licenses.

Ira J. Williams, Esq., appeared for the automobilists, and after pointing out the illegality and unfairness of compelling his clients to pay two taxes—one to the city, the other to the state—averred that the Act of Assembly of 1905 annulled the ordinance of Councils of 1902, with its requirement that licenses and tags must be obtained from the city. He called the attention of the court to that section of the new state law which says that "not more than one state license number shall be carried upon the front and back of said vehicle while operated or used on any of the public streets or public highways, and a license number obtained in any other place or state shall be removed from said vehicle while the vehicle is being used within this commonwealth."

The obvious intent of this section, Mr. Williams claimed, was to create a uniform system of automobile licensing throughout the state and to do away with the present multiplicity of licenses and tags. The contention of the city, he said, is that local licensing should be continued; and in the case of a touring party traversing various cities and towns of the commonwealth, each with its local ordinance governing the operations of automobiles, the hardships and annoyances which such ruling would impose upon his clients must be apparent.

"If the ordinance of Councils of 1902 is to continue in force after January 1 next," said Mr. Williams, "it will be an assumption by the city of what is clearly a prerogative of the state. Under the new law an automobile may travel the length of the state with but one license number displayed—that issued by the commonwealth—and if any local government apprehend an automobilist for failing to exhibit its particular license number it would devolve upon that local government to show its authority for compelling display of number.

Assistant City Solicitor Alcorn, acting as spokesman for the city's counsel, opened with the statement that the new law had nothing whatever to do with the ordinance of Councils of 1902. "That ordinance," he said, "was not nullified by the new law, and the city has a perfect right to continue to enforce it. The right of the city to regulate the running of vehicles upon its streets existed decades before the Act of 1905 was thought of. That act is not a prohibitory measure as to automobile licenses, but simply gives permission for the running of motor vehicles under a state license; and this permission does not deprive the city of the right to enforce its ordinance relative to similar licenses. As several acts of assembly specifically authorize councils to provide for the proper regulation of vehicles, there is no doubt that the city has full power to pass the ordinance of 1902."

"The Act of 1905," continued Mr. Alcorn, "does not supersede or repeal the earlier ordinances within the limits of the city of Philadelphia. The inquiry remains whether those particular sections of the ordinance under which a license fee is required to be paid and a license tag to be shown are in such necessary conflict with a somewhat similar provision of the new state law that they must be regarded as nullified thereby. It is reasonably clear that the terms of Section 4 of the Act do not of themselves apply to license tags required by the municipal regulation of cities within the state."

Mr. Alcorn went on to say that there was nothing in the restriction that "not more than one state license number shall be carried upon the front and back of the vehicle," etc., to show that other than license tags furnished by foreign states are prohibited, apart from the use of the word "place," which was evidently used in a substituting sense for the purpose of extending the meaning of the word "state" so as to embrace other sections outside the commonwealth which are not states—the territories, the District of Columbia and foreign countries, for example.

"There is thus," he concluded, "no conflict between this section of the new law and those portions of the ordinance of 1902 which make it obligatory to obtain a license within the city of Philadelphia and to display the license number. To attach any other meaning to these provisions of Section 4 of the Act of 1905 would be to interpret them most narrowly and in such a sense as conflicts absolutely with the context and meaning of the section as a whole. The purpose nowhere appears in the act to prohibit the display of more than one number, and that purpose could not be imported into it by interpretation."

Before adjourning the court announced that its decision would be announced in ample time to protect the interests of all the parties concerned.

The prospect of being mulcted of its license fees for the coming year has not deterred the city from going ahead with its preparations to issue them as usual. The tags and the necessary printing have been ordered, despite the fact that they may be left on the hands of the Bureau of Boiler Inspection.

Meanwhile, local license brokers and notaries are preparing to make a good thing out of the business of filling out applications for the state licenses, several thousand of which have been sent down from Harrisburg. The Automobile Club of Philadelphia will save its members this extra expense by having Secretary Gundlfinger receive applications from 10 A. M. to 8 P. M. at the clubhouse on Wednesday next. The unfortunate "unattached" will be compelled to go to the brokers and notaries, who have been supplied with the necessary blanks and empowered to receive the license payments and the fees, which will range from 50 cents to $1, according to the rapacity of the broker.

MORRELL BILL'S CHANCES.

Measure Introduced in Congress Has Small Chance of Passing.

WASHINGTON, D. C., Dec. 18.—The bill recently introduced in Congress by Representative Morrell, of Pennsylvania, regulating the operation of automobiles between the states, is roundly denounced in many quarters. Interviews with a number of prominent representatives regarding the chances of the bill ever being reported from the Committee on Interstate and Foreign Commerce, to which it was referred, show that the general opinion is that the measure is doomed to die a natural death in committee. The chairman of the committee is William P. Hepburn, who comes from an agricultural district in Iowa.

Despite its pernicious features of class legislation, the Morrell bill is sure to find favor in the eyes of a few bucolic representatives, and it behooves automobilists in every section of the country to lose no time in manifesting their disapproval of the proposed law. The surest and quickest way of placing the bill in oblivion would be for individual automobilists and the automobile clubs throughout the country to flood Congress with protests and petitions against the enactment of a law that would deal a great and growing industry a body blow. No time should be lost in letting Congress know the sentiment existing against the Morrell bill.

BILL ALLOWS JAIL SENTENCE.

CHICAGO, Dec. 16.—Ex-Judge Hiram T. Gilbert, father of the municipal court bill, gave an address before the Young Men's Good Government Club this week, in which he explained how he thought automobilists who indulge in excessive speeding should be treated.

If the supreme court does not interfere, criminal automobilists may be sent to jail by the judge under the new court system without the difficulty that is experienced under the present system. The new municipal court measure empowers the judges to send a man to jail for thirty days upon finding him guilty, as provided in the ordinance regulating speed upon the public highways.

Judge Gilbert says fines will never stop speeding, and the only way to bring the scorchers down to a reasonable speed is to put them in jail while they think it over for about a month.

The automobilists of Chicago will strenuously oppose the new bill.

MAY INVADE STOCKYARDS.

Horse Pavilion May Be Leased for 1907 Chicago Auto Show.

CHICAGO, Dec. 16.—The automobile is pursuing the horse to his last retreat, and now threatens to invade the stockyards. Manager L. L. Fest, who has charge of the Chicago automobile show, is now negotiating with the management of the horse pavilion at the stockyards, with a view to holding the 1907 auto show at that place.

The horse pavilion is now the only available place large enough to accommodate the exhibitors at the automobile show, and if the ratio of increase keeps up, even that will not be large enough by next year.

The show next February will fill both the Coliseum and the First Regiment Armory, where the combined floor space is 112,762 feet, and exhibitors cannot now get as much space as they desire. The horse pavilion has about 75,000 square feet more than the combined space of the Coliseum and armory.

There will be nearly 250 manufacturers represented at the show next February, which is almost double that of last year. There will be 104 makes of cars exhibited as against 76 in 1905. The total number of exhibitors last year was 170.

MARCUS BROCK GOES TO A. L. A. M.

Announcement was made on Tuesday that Sales Manager Marcus I. Brock, of the Autocar Company, of Ardmore, Pa., had resigned his position with that company to accept a position as assistant manager of the Association of Licensed Automobile Manufacturers. Mr. Brock will assume his new office on January 20, relieving the general manager of some of the burdens that have increased with the growth of the association during the past two years. The A. L. A. M. is now departmentalized into the following: The Board of Managers, Executive Commitee, Patent and Legal Department, Agency Department, Traffic Department Handbook Department, Madison Square Show Department, the Mechanical Branch, the Technical and Testing and Metallurgic Department and the Association Patents Company.

ILLINOIS STATE ASSOCIATION.

More than 1,000 Members in Organization Seeking General Benefits.

SPRINGFIELD, ILL., Dec. 18.—The Springfield Automobile Club and the automobile clubs of Peoria, Bloomington, Decatur, Rockford, Austin and Chicago, will be welded into a state association, of which Sidney S. Gorham, of Chicago, is president and which has now more than 1,000 members.

Up to the present time the only effort of the club officers and directors has been to increase the membership so as to embrace a majority of the automobilists of Illinois, but it has been decided to begin a campaign in the interest of good roads and for a state automobile law providing for a uniform speed limit, for the state licensing of automobiles and numbering of the vehicles by the state instead of by the several cities.

During the last session of the Illinois legislature a bill was passed for a state licensing law, but it was vetoed by Governor Deneen. It is believed that a state organization will secure enough legislative supporters to put through another bill and bring argument and influence enough to bear upon the governor to enable him to see its merits.

As it now is, every city and village has its own speed laws and limits, and it is almost impossible for a tourist to keep from violating them unless he has studied them all. A universal speed law provided by the state would obviate this and many other troubles. It is also proposed to erect guide posts at crossroads all through the state and, in short, to conduct a general campaign in the interest of all members of the organization.

BUFFALO ASSOCIATION ELECTION.

BUFFALO, Dec. 18.—The annual meeting and dinner of the Buffalo Automobile Trade Association was held last evening in the rooms of the Automobile Club of Buffalo. The attendance was large and Vice-President J. A. Cramer presided. After the members had enjoyed an elaborate supper, the officers for the ensuing year were elected as follows:

President, J. A. Cramer; vice-president, W. C. Jaynes; secretary (re-elected), Dai H. Lewis; treasurer (re-elected), John J. Gibson; executive committee, P. W. Eigner, E. C. Bull and N. P. Baker, together with the officers ex-officio.

It was voted that the year's sessions had been the most successful and harmonious in the history of the organization.

WORCESTER CLUB'S NEW ROOMS.

WORCESTER, MASS., Dec. 18.—The new rooms of the Worcester Automobile Club, on the top floor of the block at 44 Front street, were opened last Thursday with an informal dinner, at which the Board of Governors sat. Many others dropped in during the afternoon and evening and expressed

admiration for the splendid appointments, the rooms now ranking with the best in New England.

The new rooms occupy the entire floor and have been tastefully decorated and furnished. The rooms consist of a parlor, dining-room, smoker and card room and kitchen. The club now has its own chef.

Although the membership was increased by thirty-seven week before last and the limit raised by fifty, there is already another waiting list of thirty. The membership committee will hold a special meeting this week to act upon the applications. On January 1 the yearly dues will be raised from $5 to $10 a year.

LONG ISLAND CLUB COMMITTEES.

The following appointments of new committees for 1906 are announced by the Board of Governors of the Long Island A. C. As members of some of these committees have not yet been selected, a complete list cannot be given yet.

Membership committee.—Frank G. Webb, chairman (reappointed); M. S. Allen and Leffert Lefferts.

Runs and tours.—A. R. Pardington, chairman; Dr. C. B. Parker and W. T. Wintringham.

Law and legislation.—Dr. William Payson Richards, chairman.

Technical.—Lewis T. Weiss, chairman; Herbert L. Towle and Alfred Mackay.

Good roads.—Augustus Post, chairman.

House.—Edwin Melvin, chairman.

Entertainment.—W. S. Pierson, chairman; Edwin Melvin and Louis H. Irwin.

Auditing.—J. H. Emmanuel, Jr., chairman.

Garage.—Z. Nelson Allen, chairman.

The demand for storage space by members of the club has been so great that the matter of adding one or two additional stories to the new club building is being considered. President Wilmarth says that the club will have a membership of 500 by May 1. The entertainment comittee promises to make things lively during the winter months. An exhibit and "talk" will be given on Friday, December 29, the Packard, Buick and another good car being shown. The clubhouse is being decorated by Mr. Melvin for the occasion and the Williams and Walker colored quartette will furnish entertainment for visitors after the various cars have been examined, and light refreshments will be served.

NEWS NOTES OF THE CLUBS.

NEW YORK.—At the special meeting of the Automobile Club of America, called for the evening of December 12, the proposal to raise the limit of membership from 700 to 1,000 was unanimously adopted.

WASHINGTON.—A series of Saturday night smokers has been inaugurated by the A. C. of Washington, and they are having the effect of greatly stimulating interest in the club. The membership is growing steadily, and it is confidently expected that before spring the club will be 200 strong. Members are highly pleased over their success in enlisting the aid of the superintendent of the street cleaning department in securing the prompt removal of broken glass from the streets. Special messengers will be sent out to collect the dangerous substance as soon as notification is received. Many a tire will thus be saved from damage.

NEW YORK.—The annual meeting of the New York Motor Club, held last Thursday night, was largely attended. The regular ticket was elected as follows: President, W. J. P. Moore; vice-president, H. M. Swetland; second vice-president, R. H. Johnson; secretary, A. B. Tucker; treasurer, F. J. Griffin.

NEW YORK.—The recently organized Motor Boat Club of America is trying to secure the clubhouse belonging to Columbia University Boat Club, to be used as headquarters of the club. The Ways and Means Committee has been authorized to go ahead and approximate the cost of purchasing the property and fitting it up properly.

A "FOUR-CYLINDER" LUNCHEON.

At a luncheon given to the managers of New York branches and agencies for companies manufacturing four-cylinder cars in America, by the Breslin Hotel Company, at the Breslin Hotel, on December 14, an interesting feature was a drawing for the privilege of exhibiting a 1906 model in the rotunda of the hotel during the week of the automobile shows in January. The Orient was the lucky car that won, the White steamer being second. It will be remembered that the White had the privilege last winter.

After the luncheon John Gerrie, automobile editor of the *Herald*, acted as toastmaster and there were a number of amusing speeches by those present.

An official report states that out of 250 motor cars registered in Moscow, Russia, 180 are Oldsmobiles.

FACTORY FOR BERLIET CARS.

American Locomotive Works Plant Where Copies of French Car Will Be Built.

PROVIDENCE, Dec. 18.—The factory of the American Locomotive Automobile Company in this city is nearly completed, and in a short time, it is expected, will be in readiness to begin the manufacturing of the Berliet car after the designs of the French car built in Lyons, France.

The new automobile factory is located on Kingsley avenue, adjoining the plant of the American Locomotive Company, which was formerly the Rhode Island Locomotive Company. The building is constructed of brick over a framework of steel. It measures 375 by 63 feet and is three stories in height. The machinery in the automobile factory will be operated by electric motors, the current being derived from powerful dynamos in the locomotive plant. The several departments will be operated in sections by a unit system of motors. The machine shop will be located on the third floor; assembling will be conducted on the second floor and the engines and cars will be tested on the ground floor. It is expected that about 200 hands will be employed.

The Berliet cars to be built are of 24, 40 and 60 horsepower. The plant will be able to turn out about 200 cars a year and work in the drafting-room has already been begun.

TIRE REPAIR PLANT IN NEW YORK.

An extensive tire repair plant is being installed in the building, soon to be occupied by the New York branch of the Goodyear Tire and Rubber Company, at the corner of Broadway and Sixty-fourth street; the branch will occupy the entire building, consisting of three stories and basement. The repair plant will be located in the basement, while the other floors will be used for offices, sales and stockrooms. The present quarters of the branch are at 253 West Forty-seventh street, New York, and it is expected that the new place will be ready for occupancy by January 1.

BUILDING OF AMERICAN LOCOMOTIVE WORKS IN PROVIDENCE FOR AUTO CONSTRUCTION.

The basement, where the repair department will be located, is divided into two parts. In one room tires will be cleaned and otherwise prepared for the actual repair work, which includes vulcanizing, while in the second room will be installed the vulcanizers and the heating apparatus necessary for their operation. In this way the vulcanizing-room will be kept clean and free from dust and dirt which might effect the work. The plant will be so complete that a new tire can be built up and vulcanized, though, of course, there will be no facilities for working up the raw materials. Thus, any tire that is susceptible of being repaired can be handled under the best conditions.

The first floor will be used for offices and as a sales and showroom; the large area of glass insures an abundance of light during the day, while numerous electric clusters will be used at night. The second floor will be used as a salesrom for tires, and stock tires, pneumatic and solid, for automobiles and horse-drawn vehicles will be carried on the third floor. The second floor is almost as well lighted as the first, while the third, which was originally built for the use of a photographer, has an enormous glass skylight.

The building is being refitted for the Goodyear branch, and, among other things, will have an electric elevator. It is expected that the first of January will see the new occupants installed and ready for business

MAXWELL BRANCH PLANT.

Large Assembling Factory Opened in Pawtucket—Another in Illinois.

PROVIDENCE, R. I., Dec. 18.—The Maxwell-Briscoe Motor Company began active operations in Pawtucket, near this city, early last week, and it is expected that within a short time will be turning out finished cars. The company, which has a large automobile establishment at Tarrytown, N. Y., is operating as a branch in Pawtucket a large factory formerly leased by the Hope Thread Mill. The building has been thoroughly refitted with new machinery.

The Maxwell company has been placing large orders with the Brown & Sharp Manufacturing Company, of Providence, for transmission gears, and this made it desirable for the company to have an assembling shop in the immediate vicinity of the establishment where the parts are made. It is understood that the company has a similar branch in Illinois, not far from Chicago.

The plant here comprises about 40,000 square feet of floor space, in a four-story frame building.

The concern will employ about 250 hands and the heads of departments will be brought from Tarrytown.

In addition to its two-cylinder touring cars and runabouts, the Maxwell-Briscoe Company is testing a new four-cylinder touring car of 35-horsepower, which will be placed on the market very soon.

News and Trade Miscellany.

On the large plot of ground which the Packard Motor Car Company recently acquired adjoining its present site in Detroit, Mich., the company is erecting a two-story building, 60 by 175 feet, to be used as an addition to the motor and chassis erecting departments. The new building gives the Packard people additional floor space of 21,000 square feet.

Richard T. Bacon, Jr., who has been manager of the Chicago branch of the Studebaker Automobile Company during the past year, has resigned that position and will be associated with George Crane, manager of the Knox Automobile Company branch for Chicago and the West. Mr. Bacon will devote his time to the pleasure cars, while Mr. Crane will look after the commercial end of the business.

The first 1906 Acme car is expected to arrive at the Chicago branch in a few days, Secretary Arthur Devlin, who was at the factory in Reading last week, having written information to that effect. The Acme is arousing considerable local interest because the factory is owned by Chicago capitalists.

Walter L. Githens, who for the past three years has devoted his time solely to the Oldsmobile, in Chicago, will next year add the Stearns to his line. Mr. Githens has just returned from the Stearns factory, in Cleveland, where he completed arrangements for handling the 1906 product.

The Queen will be the exclusive line handled next year by H. P. Branstetter, of Chicago, who will be located at 1337 Michigan avenue.

R. P. Rice, who has been factory representative of the Ford Motor Car Company, is now acting as salesman at the Chicago Ford branch.

T. J. Fisher and George Soules were in Philadelphia last week, having completed their 14,000th mile before reaching the Quaker City. They are making a round of the Pope-Toledo agencies, demonstrating the qualities of the 1906 car. Theirs was the first car to climb City Line Hill on high gear with five passengers aboard.

The Rands Manufacturing Company, Detroit, Mich., makers of auto tops, which was formerly the Wheeler Manufacturing Company, has removed from Baltimore avenue to the northwest corner of Beaubien and Macomb streets, occupying a two-story and basement brick building, to which another story will be added at once.

Charles Van Horne, formerly with the Buick Motor Company, is now assistant manager of the Jackson Automobile Company, Jackson, Mich.

The Burtt Manufacturing Company, Kalamazoo, Mich., is erecting a large addition to its factory on Edward street.

Blood Bros. Automobile Company, Kalamazoo, Mich., is about to add additional equipment to its plant for the manufacture of automobile parts.

A building with a frontage of 150 feet on Woodward avenue and 161 feet on Alexandria avenue, Detroit, is now in course of erection, and, when completed, will be occupied by the local agencies of the Packard, Peerless, Buick, Welch and Soules cars. The building will be one story in height, and will probably be completed by February 1, 1906.

The United Shoe Machinery Company, of Boston, Mass., has adopted the motor truck as a means of transporting its product, having recently purchased a 1 1-2-ton Packard truck.

A case in the court at Norristown, Pa., last Monday, against John B. Stetson, Jr., whose automobile, it is claimed, frightened the horses of Mrs. George and Addison Yerkes, resulting in a runaway and the injury of the occupants of the carriage, was non-suited because Mr. Stetson proved that he was 2,000 miles away, in Arizona, at the time the accident occurred. It was his younger brother, Henry, who was in the automobile at the time, and as the accident occurred in 1903, the statute of limitations will prevent the plaintiffs from taking further action.

A recent purchaser of a Knox air-cooled truck is the Chicago dry goods firm of Marshall Field & Co.

The Welch, Estberg Company, of Milwaukee, Wis., recently incorporated with a capital of $50,000, will, early in the spring, occupy a new three-story building, now being erected at the corner of Grand avenue and Seventh street. An up-to-date garage will be a feature of the establishment, and, besides carrying a large line of automobiles, a complete stock of supplies will be kept constantly on hand.

Recent purchasers of foreign cars through Smith & Mabley include: George Ehret, Jr., Thomas Dolan, G. Piel, A. B. Proal, F. M. Warburg, Charles I. Scott, purchasers of Mercedes machines; W. B. James, M.D., Otto Young, of Chicago, Mrs. C. D. MacDougall, C. de Heredia and George B. Gardiner have taken Panhard cars.

T. H. Jacobs, formerly the Grand Rapids agent for Rambler cars, has become connected with Thomas B. Jeffery & Co.

The Anderson & Sons Co., of Detroit, Mich., tool manufacturers, has contracted for so large a supply of crankshafts for automobiles to be delivered next year that the concern has found it necessary to inaugurate a system of working two shifts of employees twenty-two hours a day. With the double shifts in operation, about a hundred skilled men will be employed, and the company hopes in this way to be able to keep up with its orders.

W. W. Burke, who has been manager of the Electric Vehicle Company's branch in Boston, has been transferred to the management of the New York branch.

Henry Hill and George E. Risley, of the Electric Vehicle Company, Hartford, who lately returned from a hunting trip in Maine, played the part of hosts at a moose dinner given recently to their fellow workers in the Hartford plant. The menu card was unique, and characteristic of both hunting and automobiling, showing a moose rigged up with brake, lamps, horn, etc., and going at top speed.

C. A. Benjamin, of the H. H. Franklin Manufacturing Company, of Syracuse, S. T. Davis, president of the Locomobile Company, of Bridgeport, and John S. Gray, president of the Ford Motor Company, of Detroit, were among the prominent trade visitors to Philadelphia last week.

The Philadelphia uptown garage of Thomas B. Jeffery & Co., on Twenty-seventh street, above Girard avenue, is being enlarged to take care of its rapidly growing storage and repair business.

M. E. Brigham, president of the Eastern Automobile Company, of Philadelphia, which represents the Stevens-Duryea and Peerless in that territory, is in Europe, for the purpose of taking in the big automobile shows. He is expected to return about February 1.

INFORMATION FOR BUYERS.

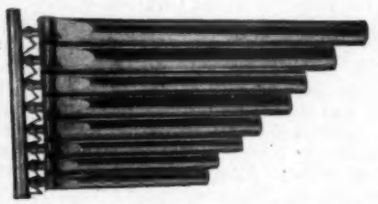
GOODRICH TIRE AND RIM.—A new "quick detachable" tire and rim, similar in construction to the regular Goodrich clincher, but designed to be easily removed and applied without the aid of tools, has just been perfected and placed in the market by the B. F. Goodrich Co., of Akron, O. The rim for the new tire has a detachable ring provided with hooked ends that engage the rim proper through a slot. The hooked ends can be released quickly, freeing the ring from the rim and leaving practically a flat surface for the tire to slip over. In the new tire there is a flap to protect the inner tube and guard it against pinching. The use of lugs or clips is eliminated and creeping or becoming detached, either when inflated or deflated, is prevented. No bolts, screws or turnbuckles of any sort are employed. The rim has the advantage of being of standard clincher type adaptable to all standard sizes of wheels.

ROBERT VOLT AMMETER.—An instrument by which either the voltage or the amperage of a battery may be ascertained is illustrated herewith and is manufactured by the Robert Instrument Company, of 56 Shelby street, Detroit, Mich., under the name of the Robert volt-ammeter. As the illustration shows, the face of the instrument carries a single pointer and a double scale, the upper part of which is graduated to read in amperes, while the lower part reads in volts. Projecting from the bottom of the case are two steel points or spurs, and over them the letters V and A (volts and amperes). From the top of the case extends a flexible cable with a contact point at its end. When it is desired to test the voltage of a battery the steel spur marked V is held against the carbon or positive battery connection and the terminal of the cable is held against the negative terminal of the battery, when the correct voltage may be read from the voltage scale. By using the other spur, marked A, and reading from the amperage scale, the amperage of the battery may be determined, the one instrument serving both purposes. These instruments are made with various maximum limits for various uses, and separate volt meters and ammeters are also made. Each instrument comes in a leather case.

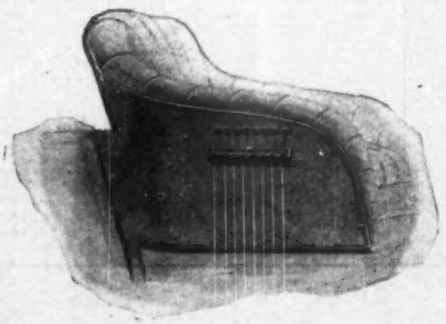
ROBERT VOLT-AMMETER.

NEVEROUT LAMPS.—In arriving at a decision in the purchase of a car, it is prudent to consider the nature of the equipment, such as carbureter, cooler, magneto, lamps, horn and tools. As the customer is, of course, charged for these things, he is entitled to equipment in keeping with the character and price of the car. If a manufacturer is building a high-grade car he will not risk injuring its reputation and his own by placing on it attachments that will prove faulty and unsatisfactory. Neverout Lamps, made by the Rose Mfg. Co., of Philadelphia, are one of the earmarks of good material, costing more than inferior lamps manufactured especially for the builders of cars, yet being cheaper in the end.

MUSICAL HORNS.—Two, three and four-chime Gabriel horns, which have had such a widespread popularity since their introduction at the automobile shows last winter as almost to amount to a fad, are now supplemented by an eight-chime horn lately invented and put on the market by the same patentees, the Gabriel Horn Mfg. Co., of Cleveland, O. This marks the first attempt to place anything strictly musical on the market. As the pipes are pitched to scale, any ordinary tune can be played upon them, a keyboard being attached to the side of the car where it can be reached easily and wires connected with valves in the horn. The Gabriel horn is connected by a pipe with the exhaust pipe back of the muffler, and a valve operated by a foot lever admits as much exhaust gas under pressure as the operator desires for blowing the chime. As the valve opens the pipe to the horn it closes the muffler exit. The horn is attached to either side of the car, usually just above the running board back of the front fender, with the pipes pointing forward; or it can be put under the car. The new eight-chime horn is, like its predecessors, made of brass tubing and headers, polished and lacquered to prevent tarnishing. It is a beautifully modulated chime and is superior to anything yet produced. This horn will be on exhibition at the Madison Square Garden and Sixty-ninth Regiment Armory shows in New York. The Gabriel horn is protected by U. S. patent 802,386, dated October 24, 1905, and applications for other patents are pending.



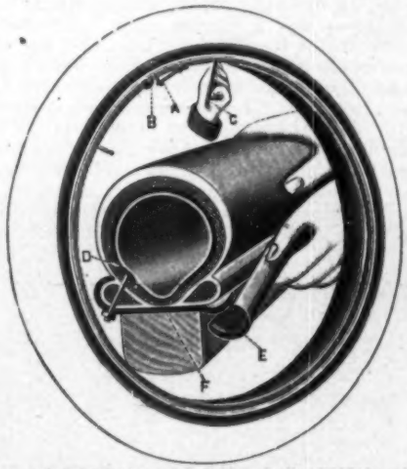
GABRIEL MUSICAL EIGHT-CHIME HORN.



KEYS AND WIRING FOR NEW GABRIEL MUSICAL EIGHT-CHIME HORN.

BALL TRANSMISSION GEAR.—A planetary transmission without internal gears is manufactured by the New York Gear Works, of 56 Greenpoint avenue, Brooklyn, N. Y., under the name of the Ball transmission. This gear gives two speeds forward and one reverse; the ratio on slow speed forward is one revolution of the gear sleeve to two and a half revolutions of the motorshaft, while on the high speed the gear runs solid and at the same speed as the motorshaft. The ratio of the reverse is one to six. The Ball transmission is made in four sizes: No. 1, to transmit 5 horsepower; No. 2, 12 horsepower; No. 3, 24 horsepower, and No. 4, which is intended for heavy delivery wagons and trucks. The gear is enclosed in a case which is to be kept filled with soft grease. In addition to the transmission gear, this concern makes a reverse gear for boats and a bronze positive circulating pump.

WHEEL RIM.—James M. Padget, of Topeka, Kan., is patentee of the clincher tire rim shown in the illustration herewith. The rim is made in two parts—the rim proper, *F*, and a removable convex split ring *E*. The form of both is apparent. Any detachable tire of standard section can be used, being secured against creeping by the use of three or more bolts, *D*, inserted from the inside of the casing. The tire having been slipped into position while deflated, a lug *B* in one end of the split ring is inserted in a recess formed in the rim and the convex ring is pushed into position encircling the concave edge of the rim and engaging the bead of the tire with its upper edge. A tool *C* is then inserted in a hole provided for the purpose and a slight pull given to draw the ends of the flange ring together, when a pin *A*, integral with a spring attached to one end of the ring, will spring into a hole in the opposite end of the ring, locking the flange in place until released. It is claimed for the Padget rim that it has no narrow channels nor threaded portions to rust or cause trouble and that a model of the rim was used for more than a year on the inventor's car without giving the slightest trouble.



PADGET RIM FOR DETACHABLE TIRE.

PUNCTURE-PROOF TIRE.—A tire embodying a novel form of construction, built with a view to avoiding danger of puncture while retaining all the resiliency of the ordinary pneumatic tire, is manufactured by the Mitchell Punctureless Pneumatic Tire Company, of Swampscott, Mass. A deep, round-bottomed steel channel takes the place of the usual wheel rim, and on the bottom of this channel rests a tube like an ordinary inner tube, but much thicker; the diameter of the tube is considerably less than the depth of the channel.. An outer covering, corresponding to the shoe of an ordinary pneumatic tire, covers the channel, and between the shoe and the inner tube are rubber plugs placed close together and with overlapping inner ends. These plugs are of such size that they just fill the openings left

by the flanges used to attach the outer covering to the channel. When the weight of the car rests on the tire the plugs at the point of compression are forced against the inner tube, which gives the requisite resiliency. The inner tube is protected by the steel channel and by the rubber plugs and cannot be reached by any ordinary puncturing object.

NEW LUBRICATOR.—An oiling device especially for use on Stanley steam cars is manufactured by William Hight, of Newport, Vt., and, according to the statement of the manufacturer, has been successfully tested in practical road use. The oiler is connected with the various frictional points of the engine by copper tubes; the pressing of a plunger every twenty miles is sufficient to keep the engine thoroughly lubricated; this can be done while the car is running. The device is fastened to the frame of the engine by two screws, and can be attached by any mechanic in half an hour. Every bearing on the engine is reached, including the crossheads, piston rods and valve stem guides.

TURBINE PROPULSION.—In engineering circles the arrival in New York harbor last week of the new turbine driven Cunarder *Carmania* was a notable event. The turbines are of the Parson's type and are of course steam driven. The huge vessel, of 29,800 tons displacement, is a sister ship of the *Caronia* of the same line, which is fitted with ordinary reciprocating engines. On her first trip over the *Carmania* proved to be a magnificent sea boat, as fearful weather was encountered through which she steadily made headway, arriving in New York on time and reporting not the slightest derangement of machinery on the way over. The ship has three turbines—one high pressure on the center line and two low pressure, one on each side. She has consequently three shafts and three propellers, and the rotary speed of the latter is much higher than is possible with reciprocating engines within the practical limits of piston speed. As the motion of the turbine rotor is in one direction and as it is carefully balanced, and as there are no changes in direction of any of the moving parts, there is a complete absence of engine vibrations, a seriously objectionable feature of all the faster ships fitted with the usual machinery. The equipment and accommodations of the new vessel are of Cunard quality, embodying comfort and endurance. This vessel will undoubtedly be the most popular of all transatlantic liners amongst engineers, for a trip on it will not only be an experience of physical comfort but of great educational value in the opportunity of watching the behavior of the turbines at sea. The gasturbine may never be realized, but the experiences with the steam turbine are worth serious attention.

DURO SECONDARY TIMER.—A timer to be used for distributing the high-tension ignition current for explosion motors is manufactured by T. Alton Bemus, of 294 Washington street, Boston, Mass., under the name of the Duro secondary timer. The instrument carries in the rear portion of its deep casing the primary contacts; and in the front portion are the secondary contacts and the binding posts from which wires lead off to the spark plugs. The front of the timer is closed by a disc of heavy glass and the secondary current is carried in through a contact piece passing through the glass plate at its center, thus thoroughly insulating the high-tension current and at the same time giving a clear view of what is going on in the timer. Both primary and secondary contacts are made by self-adjusting ball contact makers. By removing two wing nuts the casing can be removed, carrying the plug wires with it, and the interior can be examined. The whole instrument can be taken apart with ease. The shaft bearing is very long to give durability.

CONCERNING THE ROYAL.—An interesting piece of advertising has been issued by the Royal Motor Car Company, of Cleveland, O., manufacturers of the Royal gasoline cars, under the title "The Royal Transmission of Tucker." It is an attractive pamphlet, illustrated by engravings from photographs, telling about the testing of Roya cars in general and of the preparation fo and the running of the elimination trial fo the Vanderbilt Cup Race, so far as th Royal entry was concerned. The pamphle is interestingly written and is worth reading.

OILERS AND RADIATORS.—Among the specialties manufactured by the Kinsey Manufacturing Company, of Dayton, O., are a mechanical oiler and a radiator containing several advantageous features from the point of view of the practical user. The lubricator is of the force feed type, and, as it is driven by the motor, it starts and stops with the motor. The amount of oil fed can be regulated from half a drop to fifteen drops for every 320 revolutions of the driving shaft. Each of the individual pumps can be separately adjusted, and any one of them can be separately worked by hand to flood its bearings, without disturbing any adjustments. There are no submerged stuffing boxes, and all adjustments are made from the outside. The radiator is made up of flat tubes, the inside dimensions of the tubes being 3-16 inch by 3 9-16 inches; the tubes are fitted with fins of peculiar shape, designed with the idea of presenting as much edge surface as possible to the cooling air currents. The flat tubes are flanged into top and bottom headers, and the manufacturers state that freezing will not cause leakage. All joints can be reached from the outside with a soldering iron. The Kinsey Company also makes hoods, fenders, tanks, pressed steel frames, steel dished dashes in one piece, brass mouldings, gasoline gages and other specialties for automobile work.

BRAZING COMPOUND.—A compound for brazing steel tubing, stampings and similar automobile and bicycle work is manufactured and marketed by the Cortland Specialty Co., of Cortland, N. Y., under the name of Banner Brazing Compound. It is put up in 1, 5, 10, 25, 50, 100 and 500 pound boxes. It is asserted to be stronger than borax, boracic acid or any product made from either, so that a smaller quantity has to be used and the work is always visible.

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